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Low Gasoline Stocks Aid Crude Status

Highest daily average estimated total production in 1927, week ended July 30, 2,587,105 bbls. Lowest in 1927, Jan. 22, 2,360,789 bbls.

Larger Increase in Consumption Together With Declining Production in "Sweet Oils" Important Factors

By Andrew M. Rowley

Highest daily average estimated light oil production in 1927, week ended July 30, 2,102,385 bbls. Lowest in 1927, Jan. 1, 1,790,729 bbls.

Figures on the quantity of crude oil and gasoline in storage in the United States, considered in the light of the season of the year and the crude oil production situation at this time, serve as a good indication as to what the petroleum industry may expect within the next few months. While government figures show an unusually large quantity of crude oil was added to storage during January and that there were over 76,000,000 bbls. more crude in storage on February 1 of this year than on the same date in 1927, it is also a fact there were 10,000,000 bbls. less gasoline in storage on February 1 of this year than on the same date last year.

Consumption is registering a greater increase this year than the usual average percentage. Production of the crudes most desirable for refining is and has been declining and will continue to decline, probably, until early summer. All indications now point to a fairly substantial daily withdrawal of crude from storage in the Oklahoma-Kansas-North Texas area at least by the end of this month. Further substantial declines in production in the Greater Seminole area in Oklahoma are expected and the drilling agreement made effective there will prevent a flood of new production. California operators feel success will soon crown their efforts to shut in an additional 50,000 bbls. daily of light and heavy crude in that State. Production in West Texas is restricted by lack of pipe line and storage facilities as shown by decreased output during the past week.

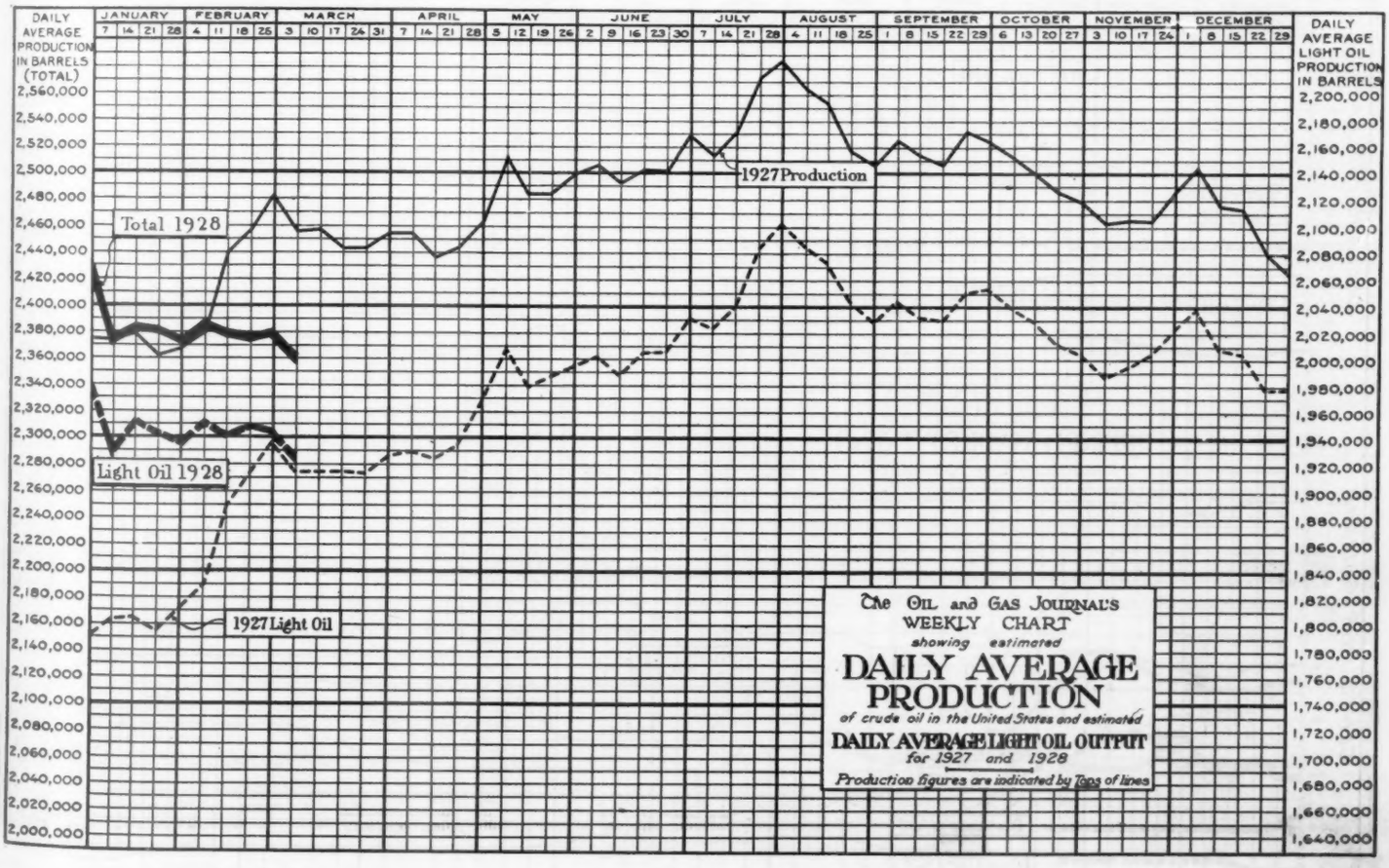
With about the first two weeks of good motoring weather over the country, the greater gasoline consumption will be reflected immediately by increased shipments from refineries as gasoline jobbers have but small reserves on hand. The gasoline market will strengthen appreciably and this, in turn, will react on the crude oil market, especially on grades of crude especially desired by refiners. All indications, therefore, point to a continued improvement in the general situation especially as it affects gasoline and the higher grades of crude.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended March 3, and a comparison with the previous week follows:

	March 3		Feb. 25	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	15,260	.....	15,530	.....
Burbank	44,445	.....	44,825	.....
Other Osage Fields	29,415	.....	29,505	.....
Cushing and Shamrock	21,130	.....	21,155	.....
Bristow and Eastern Bristow	24,870	.....	24,835	.....
Seminole	305,360	.....	306,910	.....
Northern Miscellaneous	154,285	.....	155,470	.....
Southern Fields	59,170	.....	60,590	.....
Total Oklahoma	653,935	.....	658,820	.....
West Texas—				
Hendricks	122,754	.....	134,549	.....
Yates	47,548	.....	48,308	.....
Remainder	123,578	.....	127,812	.....
Total West Texas	293,880	.....	310,669	.....
North Louisiana	37,480	7,820	36,960	7,965
Arkansas	19,785	66,940	20,055	67,680
North Central Texas	128,442	.....	126,862	.....
Texas Panhandle	72,625	.....	74,145	.....
East Central Texas	24,798	.....	25,100	.....
Kansas	112,710	.....	110,680	.....
Total Mid-Continent Area	1,343,655	74,760	1,363,291	75,645
Gulf Coast	.....	119,535	.....	119,183
Southwest Texas	.....	27,131	.....	27,309
Eastern	104,000	.....	105,500	.....
Rocky Mountain Area	77,558	.....	74,887	.....
California—				
Santa Fe Springs	38,250	.....	38,500	.....
Long Beach	120,000	.....	117,000	.....
Torrance	2,250	17,000	2,500	17,000
Huntington Beach	58,000	.....	58,000	.....
Dominguez	12,500	.....	12,750	.....
Inglewood	19,000	12,000	19,000	12,000
Ventura Avenue	53,000	.....	54,000	.....
Seal Beach	40,000	.....	40,000	.....
Remainder of State	59,500	185,000	59,750	185,000
Total California	402,500	214,000	401,500	214,000
Total United States	1,927,713	435,426	1,945,178	436,137
Grand Total	2,363,139		2,381,315	

Total Decrease, 18,176 Bbls.; Light Oil Decrease, 17,465 Bbls.



Refinery Gasoline in Greater Demand

Natural Gasolines Lower. Fuel Oil Situation Remains Unchanged. Wax Demand Improves as Lubs Move Slowly

By W. T. Ziegenhain

Lower natural gasoline prices represented about the only major change in the Oklahoma refined oil market over the week. Refinery gasolines were finding a greater demand but there was plenty available at last week's market prices. Some refiners raised their prices one-eighth cent on the U. S. Motor grade within the past four days and find their sales have not decreased but have not found sufficient support to anticipate an additional advance immediately. Kerosene prices were fractionally higher as a result of many refiners having decreased stocks over the past month by export shipments and now are able to supply the increasing domestic demand at slightly higher prices.

Furnace oils and distillates have moved very slowly. Price concessions have been given in some cases in order to clean up any stocks remaining as future scattered orders are supplied from production. Fuels were able to maintain last week's market prices and refiners in general were satisfied with the amount moved and the volume of inquiries received on March business. But any tendency toward optimism regarding the future of that market is dampened by the fact that an increasing volume of West Texas crude is being refined, yielding a high percentage of fuel oil and will be sold in the normal Oklahoma marketing territory from refining centers more advantageously located from a freight rate standpoint than the Oklahoma refiners.

Favorable Signs

Although we have entered into the third month of the new year conditions have not taken a sufficiently definite trend to enable one to make a fairly sure prediction regarding the prospects of better average refined oil prices during 1928 than in 1927, but an undertone of conservatism in expanding refining and marketing facilities may be taken as favorable in bringing about a quick readjustment of prices just as soon as the surplus crude production ceases to add to crude stocks. Many refiners are known to be drawing from their crude stocks but stocks held at all points east of California increased 7,246,000 bbls. during January, a factor which must be reckoned with in attempting to adjust prices. Too quick an advance in refined oil prices without an accompanying crude advance would encourage refiners to increase runs and plants now idle might resume operations, and a repetition of last year's low refined oil prices might come about.

Mid-Continent crude runs will be increased during March according to the estimates given by the respective companies, bringing the total daily average 8,000 bbls. above what they were a year ago, surpassed only by the runs during July and August last year. Should corresponding increases be made during the following months the outlook for an improvement in prices will be correspondingly lessened.

Price Cutting Reduced

The retail market has been gradually strengthened by the elimination of many local low-price centers. The average tank wagon price has slowly declined over a period of nearly two years and during the past month has shown the first signs of definitely turning upward. While no general tank wagon advances have been announced the market is in a much better position to effect a general advance as may be expected as we enter the period of higher consumption.

Crude oil production continues to show slight declines and Seminole is no longer regarded as a great hazard in the 1928 market although there are some parts of the field which have not been developed because of agreements and there are possible extensions to the pool which are being tested now, all of which might

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REFINED MARKET BAROMETER

A greater demand for all refinery products has given the market stability; and while plenty of material is available, fractional advances in prices have been made in most sections, and further advances are anticipated in the near future. Gasoline advanced along the eastern seaboard, and was slightly stronger in the Mid-Continent and in California. Retail prices have likewise shown an improvement, and conditions appear to be shaping themselves for a general advance as the high consuming season is entered. Fuel continues to be plentiful, but refiners are not willing to sell below the present quotations. The kerosene demand has improved both for local consumption and for export, and is quoted at fractionally higher prices. Lubricants are moving very slowly. Wax exports and an improved domestic demand have allowed refiners to quote fractionally higher prices both in New York and in Oklahoma.

Mid-Continent—The demand for gasoline increased, but prices remained unchanged. Natural gasoline prices were forced downward as a result of the little demand from refiners and less material moving to export points. Fuels were strong, but the future of the market is not being viewed with optimism. Wax was stronger, while lubricants continued to move slowly.

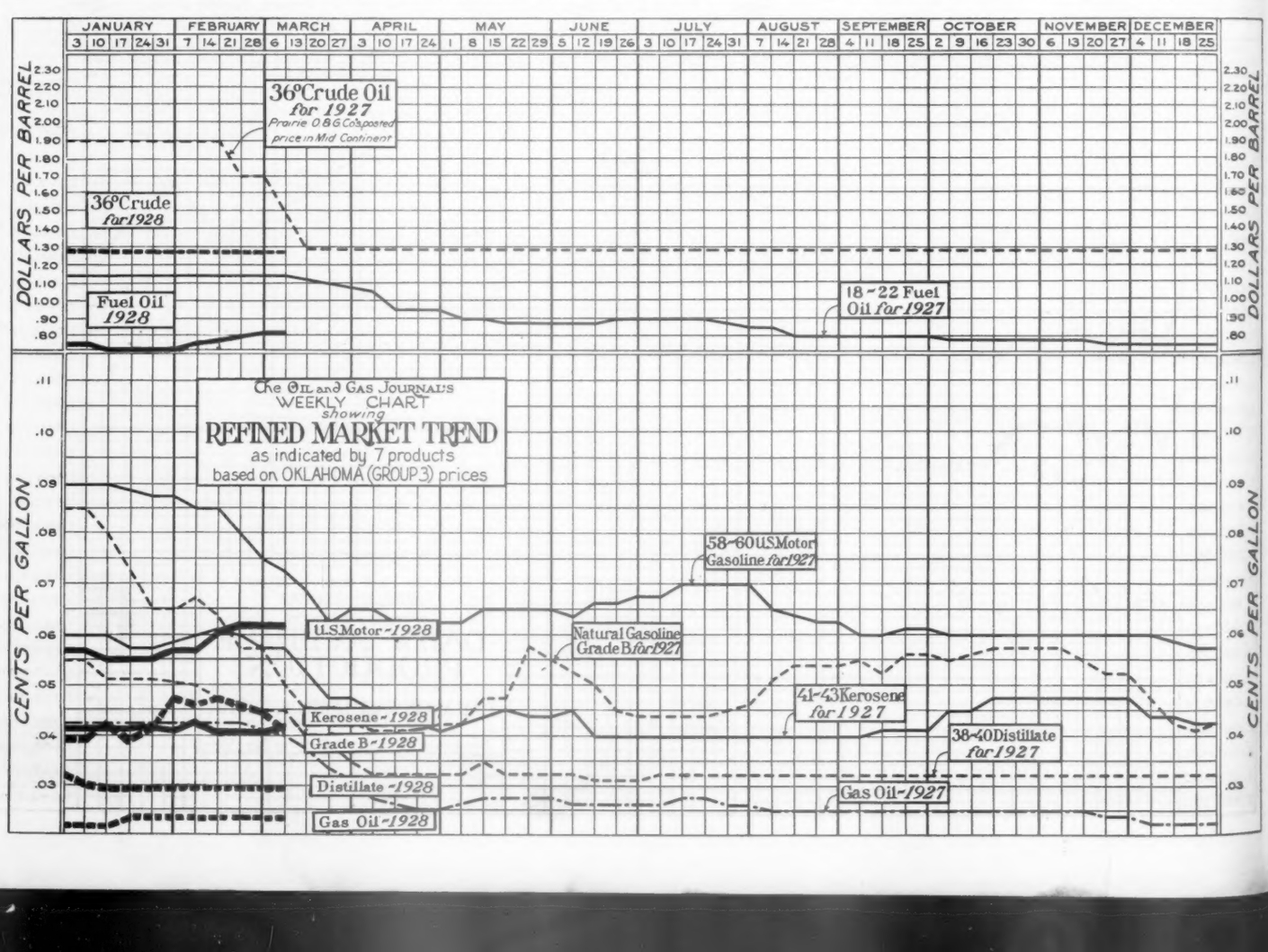
Atlantic Seaboard—An advance of one-fourth cent in the gasoline price lent stability to the entire market, and a general advance is anticipated shortly. Fuel continued plentiful and was being sold under the general market in many places.

California—Retail price reductions at several local points dampened the hopes of better gasoline prices in the immediate future, and as a whole the market was unchanged, with natural gasoline continuing very weak.

Chicago—A good demand for gasoline and fuel oil featured the market.

Gulf Coast—Exports of lubricating oils have relieved the market of large quantities of material, and higher prices are anticipated as we enter the season of higher lub oil consumption.

Pennsylvania—The demand for gasoline has improved, but has not been accompanied with price advances. Wax is somewhat stronger as a result of better export demand.



Refiners Plan Co-Operative Research

Fund to be Created and Working Out of Details to be Outlined by Directors of Western Refiners Association

By C. O. Willson

KANSAS CITY, Mo., Mar. 6.—Plans looking to a co-operative research program for the independent refining industry of the Mid-Continent were got under way here today at the annual meeting of the Western Petroleum Refiners Association. The plan which has been under consideration for several months by several leading refiners calls for the creation of a fund which will be used in the solution of research problems of special interest to the Mid-Continent refining industry. The working out of the details of the plan will be left to the board of directors and committee action. It is expected that the work will be carried on at a central laboratory under the direction of competent scientists. Tentative plans provide for fellowships at universities.

Doctor Whitmore's Address

The entire afternoon session of the one day meeting was spent in discussing the co-operative research program. The principal address was made by Dr. F. C. Whitmore who is head of the chemical department of Northwestern University and chairman of the division of chemistry and chemical technology of the National Research Council. Doctor Whitmore explained the purposes of research which he described briefly as "getting the facts." He said that research such as the association is considering often requires careful application over a long period of time during which facts are discovered, at the time have no special significance but later prove to have great practical value.

He described the co-operative research work of the Institute of Meat Packers started five years ago. One development of this work was a saving of $2,000,000 yearly to the packing industry through the development of a new method for curing hams. He also stated that where association research had been tried out it had been found to facilitate co-operative work along other lines among the membership. He said the fear commonly expressed that the larger companies would dominate the research work at the expense of the smaller companies did not work out in actual practice. He also said that the larger concerns which have their own research departments obtained as much benefit from the co-operative work as did the companies which could not afford to carry on programs of their own.

Dr. Cross on Research

Dr. Roy Cross of the Kansas City Testing Laboratory, who led the discussion of Dr. Whitmore's address on research, made the following suggestions relative to research connected with the supply of high compression gasoline:

"The first important source is from the natural or straightrun gasoline. It is not known just how much high compression gasoline might be obtained from such selected sources. It is generally known that gasoline made from petroleum of the type of California crude oil is much better in respect to antiknock value than from many other sources and it is also known that there are certain pools in the Mid-Continent Field that yield fair antiknock gasoline on natural distillation. In some crude oils it is also known that certain fractions will give excellent antiknock properties which are largely destroyed if other fractions are allowed to be mixed in.

"An illustration of the value of the study of the individual fractions of gasoline is the fact that a typical gasoline hydrocarbon known as normal octane is a badly knocking fuel, while octane of practically the same boiling point and composition, but with a slightly different chemical structure, is a fair antiknock fuel. It would seem, therefore, that research on antiknock properties of gasoline from the standpoint of the Western Petroleum Refiners Association should include a very intimate study of crude oils from every pool from which the Mid-Continent refineries draw their supply. This would include the detailed fractions, studying the antidetonating properties of every fraction and combinations of them. It should also include the study of natural gasoline from various sources from which it might be possible to work out blends having the highest efficiency.

"Another important phase of this research would be the study of the various crudes with respect to the character of the gasoline produced by cracking. The same type of study should be made on the various fractions of the cracked gasoline. Cracking under different conditions of temperature and pressure should be resorted to, but, so far as possible, keeping within the range of commercial possibilities of the present refining processes. It has been noted in the examination of a number of samples of cracked gasoline that slight variations in operation have often resulted in a different type of product as to antiknock value or benzol equivalent. These differences are some times occasioned by the addition of lime or other substances to the oil with certain conditions of cracking. Certain types of organic cyanides have given improvements.

Election of Officials

Roy B. Jones, president of the Panhandle Producing & Refining Co., Wichita Falls, was elected president of the association for the coming year. He succeeds P. M. Miskell, general manager of the refining and marketing departments of the Empire Oil & Refining Co., Tulsa, who retires after serving as the association head for two years. Fayette B. Dow, Washington counsel in behalf of the association presented a grand piano to Mr. Miskell as a token of appreciation of his work as president.

E. W. Goebel, president of the Manhattan Oil Co., Kansas City, was elected first vice president. M. J. Grogan, vice president of the Louisiana Oil Refining Corp., Sherveport, La., second vice president, and George D. Locke, vice president of the Barnsdall Refineries, Inc., Tulsa, third vice president.

The following board of 21 directors was also eletced. J. M. Ames, Kanotex Refining Co.; H. T. Ashton, Lubrite Refining Co.; D. E. Buchanan, Chestnut & Smith Corp.; F. W. Burford, Crystal Oil Refining Co.; Sheldon Clark, Sinclair Refining Co.; S. C. Collins, Marland Refining Co.; A. L. Derby of Derby Oil & Refining Co.; T. T. Eason, Bolene Refining Co.; L. R. Crawford, Producers & Refiners Corp.; A. F. Garrett, Tidal Refining Co.; John L. Gray, Shaffer Oil & Refining Co.; R. R. Irwin, White Eagle Oil & Refining Co.; E. D. Levy, Pierce Petroleum Corp.; E. J. Marston, Texas Pacific Coal & Oil Co.; I. H. Patton, Western Oil Corp.; R. B. Pringle, Independent Oil & Gas Co.; D. P. Hamilton, Root Refineries, Inc.; L. B. McCammon, Transcontinental Oil Co.; A. L. Henderson, Vickers Petroleum Co.; F. Godber, Roxana Petroleum Corp., and W. N. Davis, Phillips Petroleum Co.

E. W. Isom, Sinclair Conoslidated Oil Corp.; D. W. Moffitt, Mid-Continent Petroleum Corp.; F. A. Pielsticker, Skelly Oil Co., and P. M. Miskell, Empire Oil & Refining Co., former presidents of the association, are ex officio members of the board of directors.

President Miskell's Address

President Miskell, in his final address to the Association as president, commended the membership for the manner in which their manufacturing operations had been conducted during the past year. He said great progress has been made in the maintenance of operations in line with the requirements of the consuming markets.

The present trend toward State gasoline taxes, he declared to be potentially dangerous to the oil industry. He said that the actual consumers did not realize the importance of these taxes as a factor in the price they paid for gasoline. He expressed the fear that with the return to more normal markets in the industry with higher retail gasoline prices, the taxes would result in governmental investiga-

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NEW PRESIDENT OF. W.P.R.A. LONG ACTIVE IN ASSOCIATION

Roy B. Jones, newly-elected president of the Western Petroleum Refiners Association, is president and active head of the Panhandle Producing & Refining Co., of Wichita Falls, Tex. Mr. Jones organized the company in 1915, and built a refinery at Wichita Falls. This was one of the first plants to be built in North Texas and at the present time is the oldest operating refinery in that area.

Roy B. Jones

Mr. Jones was born and educated in Illinois. His first activities in the oil business date from the Cushing Field development in Oklahoma. He was secretary and treasurer of the Colonial Refining Co. which operated a refinery in the Cushing section. This plant was later sold to Cosden & Co.

When the North Texas development began to attract the attention of the oil fraternity Mr. Jones went there and his operations since that time have been largely confined to that section of Texas. In addition to the Wichita Falls refinery the Panhandle company has producing properties in several North Texas counties with valuable holdings in the Panhandle area of Texas. The company also markets a substantial part of its refinery gasoline output through its own stations.

Mr. Jones is active in several other enterprises in his home city. He has taken an active interest in the work of the Western Petroleum Refiners Association and for several years has served as vice president.

BUREAU OF MINES REPORT SHOWS DECLINE IN JANUARY PRODUCTION

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Mar. 5.—According to reports received by the Bureau of Mines, Department of Commerce, from companies which operate gathering lines, the production of crude petroleum in the United States during January, 1928, amounted to 72,321,000 bbls, a daily average of 2,332,900 bbls. This represents a decline in daily average production from the previous month of 57,700 bbls. The output of January, 1928, however, exceeded that of a year ago.

The Seminole district, as usual, held the key to the situation, the decline in this field of over 60,000 bbls. per day in January being the largest single factor in the decrease in national output. Production in the majority of the other fields, particularly Spindletop, declined in January as development work and completions dropped to low levels.

A noticeable decline in refinery demand for crude was evidenced in January, with the result that stocks showed a much larger increase than for several months. Stocks of crude east of California amounted to 358,892,000 bbls., as compared with 351,646,000 bbls. the previous month, an increase of 7,246,000 bbls. Stocks of light crude in California increased for the first time since a year ago. Stocks of heavy crude in that State continued to increase.

Runs to stills in January totaled 68,193,000 bbls. as compared with 70,323,000 bbls. in December, 1927. The greater part of the decrease was in foreign crude, stocks of which increased materially during the month. Gasoline production amounted to 27,879,000 bbls., a daily average of 899,000 bbls., which represents slight decline from the previous month. Domestic demand for gasoline totaled 20,939,000 bbls., or a daily average of 675,000 bbls.

Increased Consumption

This represents a decrease of 90,000 bbls. from the previous month but is 98,000 bbls., or 17 per cent higher than the corresponding period of 1927.

Exports were materially higher but stocks increased approximately 3,800,000 bbls. to a total of 36,112,000 at the end of the month. At the current rate of total demand, these stocks represent 45

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Mid-Continent Refinery Runs Greater

March Requirements Nearly 10,000 Bbls. Greater Daily Than in February. Increase in North and Central Texas Area

By W. T. Ziegenhain

Mid-Continent refinery runs have increased 8,870 bbls. over last month and are the highest they have been except during July and August of the past year. The average runs for March will be 427,145 bbls. daily, the bulk of the increase being in the North and Central Texas refining centers. Oklahoma runs increased slightly but the Kansas, north Louisiana and Arkansas runs showed very little change. In the case of Kansas a gain of 500 bbls. is shown while north Louisiana and Arkansas each showed a small decrease.

Compared to a year ago, the March runs are 8,225 bbls. higher. North Texas runs are 14,075 bbls. higher than a year ago, the principal cause for this being the building and operation of the new 12,000-bbl. Humble Oil & Refining Co.'s plant at McCamey, Tex. Kansas runs during March will be 4,000 bbls. higher than a year ago, but Oklahoma, Louisiana and Arkansas all show small decreases.

Very little new construction work is going on but with the readjustment of the crude prices refineries located in the districts where heavy crudes were materially reduced have shown a tendency to resume operations. Marketing conditions have improved somewhat, but not sufficiently for most refiners to increase their runs despite the coming of a period of increased consumption.

Oklahoma

Practically no change resulted in the Oklahoma refinery operations for the month. The largest increase was due to the resumption of operations by the Continental Oil Co. at its plant in Sapulpa. About a month ago fire destroyed a part of the distilling equipment so the running of crude was discontinued for the greater part of February. At present repairs are being made to the regular equipment and use is being made of distilling equipment previously idle, so the operations of the plant have been able to continue at near the old rate.

The Star Refining & Producing Co. at Fort Worth and the Swastika Refining Co.'s plant at Muenster have resumed operations.

Arkansas

Arkansas refinery runs continue to show a gradual decrease from month to month, the runs for March being 750 bbls. less than in February and 3,150 bbls. less than a year ago. Except for this change which applies to all plants in general, the Arkansas refinery operations continued about as they were during February.

North Louisiana

Practically no change was made in the March refinery operations compared to February. A falling off in the runs is noted for the State as a whole and this is due to slight decreases in runs at practically all plants.

North and Central Texas

While refinery runs in North Texas showed a substantial increase, this was the result of increased runs at a few plants rather than a general increase for all. The Phillips Petroleum Co. has increased its Panhandle plant both in capacity and the runs and starting March 1 will increase their runs as the market improves. The average for March is expected to be 3,500 bbls. daily and may be increased to 6,500 should conditions warrant.

RUNS TO STILLS IN MID-CONTINENT REFINERIES

1926	
March 1	365,990
April 1	368,210
May 1	391,355
June 1	415,450
July 1	410,070
August 1	407,475
September 1	419,995
October 1	408,975
November 1	417,575
December 1	403,450
1927	
January 1	403,625
February 1	418,595
March 1	418,920
April 1	401,880
May 1	407,355
June 1	426,170
July 1	428,075
August 1	457,800
September 1	422,150
October 1	420,955
November 1	426,645
December 1	417,455
1928	
January 1	415,125
February 1	418,275
March 1	427,145

MID-CONTINENT REFINERY OPERATIONS

TABLE NO. 1

(Based on Operations March 1, 1928, and February 1, 1928)

	*No. of Plants Mar. 1	Crude Capy. Bbls.	Crack. Capy. Bbls.	Plants Oper. Mar. 1	Runs to Stills Mar. 1	Plants Oper. Feb. 1	Runs to Stills Feb. 1	Daily Inc
Oklahoma	47	276,700	103,550	40	176,525	39	174,075	2,450
N. C. Texas	41	187,200	25,200	35	109,050	32	101,900	7,150
Kansas‡	20	142,500	68,800	16	86,250	16	85,750	500
No. Louisiana	4	48,800	16,800	4	37,670	4	38,150	†480
Arkansas	9	32,300	9,700	7	17,650	7	18,400	†750
Total	121	687,500	224,050	102	427,145	98	418,275	8,870

*Does not include plants shut down one year or more. †Decrease. ‡Includes two Missouri plants.

TABLE NO. 2

(Based on Operations March 1, 1928, and March 1, 1927)

	*No. of Plants Mar. 1, '27	Crude Capy. Mar. 1, '27	Plants Oper. Mar. 1, '27	Runs to Stills Mar. 1, '27	Daily Inc. Mar. 1, '28
Oklahoma	50	259,800	46	180,345	†2,820
N. C. Texas	41	174,900	35	94,975	14,075
Kansas‡	20	125,500	18	82,250	4,000
No. Louisiana	5	50,000	4	40,550	†2,880
Arkansas	10	34,000	7	20,800	†3,150
Total	126	644,200	110	418,920	8,225

*Does not include plants shut down one year or more. †Decrease. ‡Includes two Missouri plants.

REFINERY OPERATIONS IN OKLAHOMA

(Plants which have been in operation during the past year)

Name and Location—	Daily Capacity	Runs Mar. 1	Runs Feb. 1
Anderson-Prichard Oil Corp., Cyril	2,500	2,000	2,000
Barnsdall Refineries, Inc., Barnsdall	6,000	3,700	3,000
Barnsdall Refineries, Inc., Okmulgee	10,000	4,000	7,000
Bell Oil & Gas Co., Grandfield	4,500	2,100	2,100
Bolene Refining Co., Enid	5,000	3,000	2,000
Canfield Refining Co., Yale	400	75	75
Champlin Refining Co., Enid	16,000	9,750	7,500
Continental Oil Co., Sapulpa	10,000	2,000	(*)
Cushing Refining & Gasoline Co., Blackwell	1,500	1,500	1,200
Cushing Refining & Gasoline Co., Cushing	3,500	3,000	1,700
Empire Oil & Refining Co., Cushing	5,000	4,700	4,700
Empire Oil & Refining Co., Okmulgee	3,000	3,000	3,000
Empire Oil & Refining Co., Ponca City	7,500	7,500	7,500
Garber Refineries, Inc., Garber	3,500	3,200	3,200
Gilmer Oil Co., Ringling	1,500	(*)	(*)
Globe Oil & Refining Co., Blackwell	7,500	4,500	4,800
Illinois Oil Co., Cushing	3,000	1,800	1,800
Imperial Refining Co., Ardmore	5,000	(*)	(*)
Independent Oil & Gas Co., Okmulgee	5,000	3,500	3,000
Interocean Refining Co., Bristow	4,000	(*)	(*)
Johnson Oil Refining Co., Cleveland	6,000	5,000	5,000
Marland Refining Co., Ponca City	28,000	20,000	18,000
Mid-Continent Petroleum Corp., West Tulsa	40,000	21,000	24,000
Oil State Refining Co., Enid	2,000	(*)	(*)
Oil State Refining Co., Allen	800	800	800
Peppers Gasoline Co., Covington	1,000	800	800
Pierce Oil Corp., Sand Springs	8,000	7,000	6,500
Producers Oil Co., Bristow	2,500	800	800
Producers & Refiners Corp., West Tulsa	6,000	3,800	3,600
Pure Oil Co., Ardmore	5,000	(*)	(*)
Pure Oil Co., Muskogee	9,000	7,000	7,000
Riley Petroleum Co., Bristow	1,000	300	300
Rock Island Refining Co., Beckett	2,500	1,600	1,500
Sayre Oil & Refining Co., Sayre	500	(*)	(*)
Shaffer Oil & Refining Co., Cushing	10,000	10,000	10,000
Sun Oil Co., Yale	5,000	4,900	4,800
Sinclair Refining Co., Muskogee	1,000	600	600
The Texas Company, West Tulsa	12,000	12,000	12,000
Texas Pacific Coal & Oil Co., Wynnewood	2,500	(*)	(*)
Tidal Refining Co., Drumright	10,000	9,300	9,000
Transcontinental Oil Co., Boynton	2,500	2,000	2,000
Transcontinental Oil Co., Bristow	5,000	3,500	3,700
Tonkawa Petroleum Co., Tonkawa	2,500	700	700
Western Oil Corp., Beckett	2,000	1,900	1,900
White Oak Refining Co., Allen	2,000	2,100	1,800
Wirt Franklin Petroleum Corp., Ardmore	4,000	2,200	2,200
Yale Oil Corp., Yale	1,500	1,000	900
Total	276,700	176,525	174,975

*Shut down.

REFINERY OPERATIONS IN KANSAS

(Plants which have been in operation during the past year)

Name and Location—	Daily Capacity	Runs Mar. 1	Runs Feb. 1
Arkansas City Refining Co., Arkansas City	8,000	(*)	(*)
Barnsdall Refineries, Inc., Wichita	4,000	3,500	2,400
Derby Oil Co., Wichita	6,000	3,500	2,800
Derby Oil Co., Russell	2,500	(*)	(*)
Eldorado Refining Co., Eldorado	3,500	2,200	2,000
Golden Rule Refining Co., Wichita	1,500	750	750
Kanotex Refining Co., Arkansas City	10,000	4,000	4,000
Manhattan Oil Co., Kansas City	6,000	4,000	4,000
Miller Petroleum Co., Humboldt	2,000	(*)	(*)
National Refining Co., Coffeyville	6,500	6,000	6,000
Peerless Oil Refining Co., Chanute	3,000	2,200	2,500
Roxana Petroleum Corp., Arkansas City	20,000	16,000	16,000
Sinclair Refining Co., Coffeyville	10,000	9,500	9,500
Sinclair Refining Co., Argentine	8,000	8,000	8,000
Skelly Oil Co., Eldorado	23,000	10,000	11,000
Standard Oil Co. of Kansas, Neodesha	12,000	7,500	8,000
Vickers Petroleum Co., Po.win	3,500	2,000	1,800
White Eagle Oil & Refining Co., Augusta	10,000	6,600	6,700
West Missouri Group—			
Alliance Rubber Producing Co., Centropolis	2,000	(*)	(*)
Wilhoit Refining Co., Joplin	1,000	500	500
Total	142,500	86,250	85,750

*Shut down.

REFINERY OPERATIONS IN NORTH CENTRAL TEXAS

(Plants which have been in operation during the past year)

Name and Location—	Daily Capacity	Runs Mar. 1	Runs Feb. 1
Amarillo Producers & Refiners Corp., Isom	2,000	1,300	800
Amarillo Refining Co., Amarillo	6,000	2,850	3,000
Amarillo Refining Co., Wichita Falls	6,000	2,300	2,100
Anderson & Prichard Oil Corp. (Western), Wichita Falls	1,500	(*)	(*)
Bluebonnet Refining Co., Wickett	5,000	3,000	3,100
Col-Tex Refining Co., Colorado	10,000	8,000	6,000
Continental Oil Co., Wichita Falls	6,000	3,200	3,200
Dale Oil & Refining Co., Electra	2,500	1,200	1,200
Empire Oil & Refining Co., Gainesville	5,000	4,000	4,000
Falls Refining Co., Wichita Falls	1,500	1,000	800
Gulf Refining Co., Fort Worth	10,000	8,000	8,000
Hagaman Refining Co., Tiffin	2,000	200	200
Humble Oil & Refining Co., Burkburnett	4,000	(*)	(*)
Humble Oil & Refining Co., McCamey	12,000	12,000	12,000
Iowa Park Producing & Refining Co., Iowa Park	2,500	1,200	1,200
Kent-Middleton Refining Co., Angus	4,000	1,700	1,700
Kent-Middleton Refining Co., Minerva	2,500	1,000	1,000
Macmillan Petroleum Co., Isom	5,000	4,000	4,000
Magnolia Petroleum Co., Fort Worth	12,000	5,500	5,500
Magnolia Petroleum Co., Corsicana	5,000	3,000	3,200
Noble Oil & Gas Co., Burkburnett	3,500	3,000	2,800
Olney Oil & Refining Co., Olney	2,000	1,200	1,200
Oriental Refining Co., Dallas	5,000	(*)	(*)
Oriental Refining Co. (Trinity), Dallas†	5,000	2,600	3,000
Orient Petroleum Co., Wichita Falls	2,500	1,150	1,000
Panhandle Refining Co., Wichita Falls	4,000	3,750	2,000
Phillips Petroleum Co., Isom	6,500	3,500	1,500
Primrose Refining Co., Wichita Falls	1,500	(*)	(*)
Primtex Refining Co., Grand Prairie	2,500	500	500
San Angelo Refining Co., San Angelo	2,000	1,000	1,000
Simms Oil Co., Electra	5,000	4,000	4,200
Star Refining & Producing Co., Fort Worth	1,800	500	(*)
Swastika Refining Co., Muenster	1,000	200	(*)
The Texas Company, Dallas	15,000	12,000	12,000
Tidal Western Refining Co., Burkburnett	3,000	2,000	2,000
Texas Pacific Coal & Oil Co., Fort Worth	3,000	2,000	2,000
Transcontinental Oil Co., Fort Worth	5,000	4,000	3,700
Waggoner Refining Co., Electra	3,400	2,200	2,500
White Eagle Oil & Refining Co., Fort Worth	6,000	(*)	(*)
Valley Refining Co., Wichita Falls	2,500	(*)	(*)
Valley Refining Co., Peyote	2,500	2,000	.....
Total	187,200	109,050	101,900

*Shut down. †Operated by Magnolia Petroleum Co.

REFINERY OPERATIONS IN NORTH LOUISIANA

(Plants which have been in operation during the past year)

Name and Location—	Daily Capacity	Runs Mar. 1	Runs Feb. 1
Crystal Oil Refining Corp., Shreveport	14,000	9,000	9,000
Louisiana Oil Refining Corp., Shreveport, Bossier	23,000	17,000	17,200
Shreveport Producing & Refining Co., Shreveport	6,000	5,700	5,700
The Texas Company, Shreveport†	5,800	5,970	6,250
Total	48,800	37,670	38,150

†Topping.

REFINERY OPERATIONS IN ARKANSAS

(Plants which have been in operation during the past year)

Name and Location—	Daily Capacity	Runs Mar. 1	Runs Feb. 1
Henry H. Cross Co., Smackover	4,000	3,600	3,800
Houston Oil Co., Camden	3,000	(*)	(*)
Kettle Creek Refining Co., Pearson	3,000	2,000	2,000
Lion Oil & Refining Co., El Dorado	12,000	4,000	5,600
Macmillan Petroleum Products Co., El Dorado	1,800	1,200	1,500
Ouachita Valley Refining Co., El Dorado	1,000	850	850
Root Refineries, El Dorado	3,500	2,500	2,500
Simms Oil Co., Smackover	3,000	2,500	2,600
E. M. Tulle, El Dorado	1,000	(*)	(*)
Total	32,300	17,650	18,400

*Shut down.

Big Program for Petroleum Geologists

Annual Convention Plans Announced for Meetings in San Francisco and Field Trips Out of Los Angeles

The thirteenth annual meeting of the American Association of Petroleum Geologists will be held on the Pacific Coast this year. The first part of the convention, devoted to business sessions and the presentation of technical papers, will be held at the convention headquarters, the Clift Hotel and the Native Sons Auditorium, on March 21, 22 and 23. The entertainment features of the meeting will be over the week-end at Los Angeles, March 24 and 25. The Los Angeles headquarters is the Biltmore Hotel.

The California members have charged the following committee with the responsibility of making the convention arrangements: General chairman, E. G. Gaylord, of the Standard Oil Co. of California, San Francisco; vice chairmen, C. R. McCollom, of the Prairie Oil & Gas Co., Los Angeles, and H. J. Hawley, of the Standard Oil Co. of Calif., San Francisco; program, W. S. W. Kew, Standard Oil Co., Los Angeles; publicity and exhibits, Joseph Jensen, Associated Oil Co., San Francisco; hotel, J. T. Wood, The Associated Oil Co., San Francisco; registration, S. H. Gester, of the Standard Oil Co. of Calif., San Francisco; finance, C. R. McCollom; entertainment, Irving Augur, 410 Roosevelt Bldg., Los Angeles, and transportation, H. J. Hawley.

DAVID DONOGHUE
Secretary, A.A.P.G.

The important program committee is composed of geologists from many different parts of the United States, including Chairman W. S. W. Kew, Los Angeles; Sidney Powers, Amerada Petroleum Corp., Tulsa; Eliot Blackwelder, Stanford University, Calif.; W. E. Wrather, Dallas, Tex.; Max W. Ball, Denver, Colo.; K. C. Heald, the Gulf Oil Corp., Pittsburgh, Pa.; C. Max Bauer, the Midwest Exploration Co., Amarillo, Tex., and Eugene Holman, the Humble Oil & Refining Co., Houston, Tex.

In conjunction with the meetings of the A.A.P.G., the Society of Economic Paleontologists and Mineralogists composed of A.A.P.G. members, has prepared an extensive program that will occupy a day and a half and run concurrently with the regular convention program. Professor Joseph A. Cushman of Sharon, Mass., is president of the paleontologists and Dr. Marcus A. Hanna of the Gulf Production Co. at Houston is secretary-treasurer. The Seismological Society of America is also holding its annual meeting on Tuesday, March 20, at San Francisco.

Convention Program

A condensed tentative schedule of events for the California meeting of the geologists is as follows:

Tuesday, March 20

Preconvention committee meetings.
Executive committee.
General business committee, Clift Hotel, 5 p. m.
Registration. Convention headquarters, Clift Hotel, San Francisco.

Wednesday, March 21

First day of convention, San Francisco.
Registration, Clift Hotel.

GEORGE C. GESTER
President, A.A.P.G.

LUTHER H. WHITE
Vice President, A.A.P.G.

Technical and business program, Native Sons Auditorium, President G. C. Gester, presiding.

Thursday, March 22

Second day, San Francisco.
Technical program, Native Sons Auditorium.
Dinner dance.

Friday, March 23

Third day, San Francisco.
Technical and business program, Native Sons Auditorium.

Saturday, March 24

Fourth day, Los Angeles. Headquarters, Biltmore Hotel.
Oil field trips through Los Angeles Basin.
Dinner at Breakfast Club.

Sunday, March 25

Fifth day, Los Angeles.
Sightseing and entertainment.
The annual A.A.P.G. Golf Tournament for the Bostick trophy will be held at Los Angeles. Announcement of time later.

Wide Range of Subjects

The titles of papers submitted for the scientific sessions of the program indicate the wide range of geological activity from microscopic laboratory research into the origin of petroleum to the use of aeroplanes in geologic mapping. A partial list of papers scheduled for the program follows:

1. "Limestones and Dolomites as Reservoir Rocks," by W. V. Howard.
2. "Recent Developments in Petroleum Research," by K. C. Heald.
3. "Geophysical Aspects of Wegener's Continental Drift Hypothesis," by Dr. C. A. Heiland.
4. "The Use of Aeroplane Photographs in Geologic Work," by Walter A. English.
5. "The Geology of the Seal Beach Oil Field," by R. M. Barnes and W. W. Copp.
6. "Jamin Action—What Is It and How It Affects Production of Oil and Gas," by Stanley Herold.
7. "The Subsurface of Some Unsymmetrical Anticlines in the Rocky Mountains," by John G. Bartram.
8. "The Relationship Between Over- and Under-thrusting as Revealed by Experiments," by Theodore A. Link.
9. "The Cromwell Pool, Oklahoma," by O. R. Crawe.
10. "The Ventura Avenue Oil Field, Ventura County, California," by F. W. Hertel.

(Continued on Page 129)

EARL G. GAYLORD
General Chairman Convention Committee.

MORE WELLS COMPLETED BUT LESS PRODUCTION IN MONTH OF FEBRUARY

Despite the fact 122 more wells were completed in oil fields outside of California during February than in January, the initial production of these wells totaled 96,424 bbls. less than of the completions in January. New work showed a decline during February, there being 62 less rigs and 64 less drilling wells than during January. The reports for all fields east of California follow:

SUMMARY OF ALL FIELDS

Field—	Comp.	Prod.	Dry	Gas
Eastern	261	2,130	25	66
Central Ohio	23	128	5	14
Lima	17	63	3	7
Indiana	18	185	6	7
Michigan	1	170	0	0
Illinois	14	124	6	1
Kentucky	73	3,610	17	2
Tennessee	22	1,165	11	3
Oklahoma	280	51,955	114	42
Kansas	94	10,615	34	10
Texas Panhandle	26	9,214	1	4
North Central Texas	260	11,289	108	9
West Texas	102	222,851	25	2
East Texas	12	.....	4	8
Southwest Texas	55	431	30	17
East Central Texas	7	85	6	0
North Louisiana	47	486	17	22
Arkansas	15	239	8	1
Wyoming	39	628	27	1
Montana	9	113	7	0
Colorado	8	2,555	2	0
New Mexico	4	20	2	0
Gulf Coast	102	40,652	49	1
Total Feb.	1,490	359,407	507	217
Total Jan.	1,368	455,831	432	214
Difference	122	96,424	75	3

Summary of New Work

Field—	Rigs	Drlg.	Ttl.
Eastern	101	272	373
Central Ohio	11	58	69
Lima	4	24	28
Indiana	5	48	53
Illinois	3	20	23
Michigan	8	18	26
Tennessee	0	22	22
Kentucky	8	173	181
Mississippi	2	18	20
Alabama	0	7	7
Florida	0	13	13
Oklahoma	148	653	801
Kansas	66	205	271
Texas Panhandle	26	143	169
West Texas	118	310	428
North Central Texas	70	403	473
Southwest Texas	17	123	140
East Central Texas	2	8	10
East Texas	2	17	19
Louisiana	43	116	159
Arkansas	13	44	57
Wyoming	16	126	142
Montana	22	80	102
Colorado	15	87	102
Utah	2	28	30
New Mexico	11	91	102
Gulf Coast	31	165	196
Total Feb.	744	3,272	4,016
Total Jan.	806	3,336	4,142
Difference	62	64	126

OKLAHOMA
Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carter	3	491	0	0
Creek	24	887	11	4
Grady	16	0	5	11
Kay	19	70	10	8
Muskogee and Wagoner	21	295	12	4
Okfuskee	7	635	1	1
Okmulgee	20	72	11	4
Osage	32	10,445	9	2
Pontotoc	9	805	5	2
Pottawatomie	10	4,329	3	0
Seminole	54	29,707	13	0
Stephens & Cotton	13	1,498	4	1
Tulsa	11	135	8	0
Miscellaneous	41	2,606	21	5
Total February	280	51,955	114	42
Total January	309	41,625	99	63
Difference	29	10,330	15	21

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Carter	7	20	27
Creek	26	63	89
Garfield	0	11	11
Grant	1	13	14
Grady	7	30	37
Kay	4	33	37
Lincoln	0	8	8
Logan	3	23	26
Muskogee and Wagoner	6	29	35
Okfuskee	14	22	36
Okmulgee	10	28	38
Osage	11	57	68
Pawnee	2	14	16
Payne	1	11	12
Pontotoc	6	34	40
Pottawatomie	9	44	53
Seminole	25	100	125
Stephens and Cotton	5	26	31
Tulsa	3	14	17
Miscellaneous	8	73	81
Total February	148	653	801
Total January	138	710	848
Difference	10	57	47

KANSAS
Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	8	440	5	0
Cowley	13	197	8	4

(Continued on Page 89)

J. J. M'GRAW, NATIONALLY KNOWN IN OIL AND FINANCE, PASSES AWAY

James J. McGraw, president of the Exchange National Bank, Tulsa, a director in the Sinclair Consolidated Oil Corp., former Republican national committeeman from Oklahoma, and nationally known in banking and oil circles, died in a Hot Springs, Ark., hospital Saturday morning, March 3, after several days' illness. He was stricken on the Monday before his death from acute indigestion.

The death of the banker and oil man was a tremendous shock to Tulsa and the Mid-Continent oil region, but the prominence of the deceased made his death a matter of national interest. His position at the head of one of the nation's largest banking institutions, his prominence as an oil executive, his active, useful and unselfish political career, and his charitable and educational work among the soldiers during and after the European war had given him a high standing among the big men of America, which fact was appreciated abroad and attested to with honors accorded him by foreign powers and his church. The Republic of France decorated him with the Legion of Honor. The king of Belgium made him a Knight of St. George. Pope Benedict XV made him a Knight of St. Gregory, all for his work in Europe after America's entrance into the war. The Junior Chamber of Commerce of his own city recently voted him Tulsa's most useful citizen and presented him with a loving cup.

He was an ardent Republican in politics and a former member of the Republican National Committee, but he never accepted any reward from his party, notwithstanding its leaders were anxious to show their appreciation for valuable services rendered. Mr. McGraw was credited with having saved the congressional election of 1919 for his party after President Wilson's famous plea to the voters to elect Democrats only.

Native of Kansas

James Joseph McGraw was born in Leavenworth, Kans., August 21, 1874. He was a son of Thomas and Anna McGraw, natives of Ireland and pioneer Kansans. Thomas McGraw was a freighter between Fort Leavenworth and Denver, Colo., in the days before the railroads. Young James received his schooling in the Osage Mission school in Kansas. He came to Oklahoma in the late eighties, following the famous rush for homesteads in the Cherokee strip. His father had taken up a homestead in Kay County, on which the family lived until they moved into Ponca City in the same county.

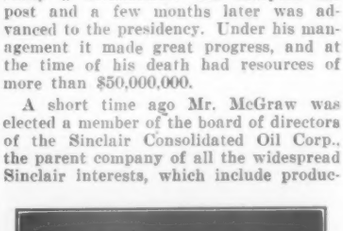
While yet a young man, Mr. McGraw entered business life as the owner of a grocery store in Ponca City, which business grew and thrived under his able management. He was married in 1899 to Miss Frances Agnes Donahoe of Ponca City. Mr. McGraw helped organize the Farmers' National Bank in Ponca City and was made its president. In banking he found himself at his best, and the success of the Farmers National, which he continued to head up to the last, brought him to the attention of bankers and financiers in other and larger cities. In Ponca City he organized the American Lumber Co., of which he was president at his death, and later he headed the McGraw-Baughman-Bearly Lumber Co. of Tulsa. He was one of the owners of the Oklavania Oil Co., made up of a few well-known Oklahoma oil men, and which operated for years in the Kay County and other fields.

When the United States entered the European war, Mr. McGraw was sent to France by the National Council of the Knights of Columbus to assist in the organization of the relief work of that order among American troops. He entered the work with all the spirit and business acumen which had brought him material success in civil life, and helped perfect a smooth-running organization which performed great service. His interest continued after the war in educational work among the veterans.

Headed Bank Since 1921

In 1921 Mr. McGraw was offered the first vice presidency of the Exchange National Bank of Tulsa, Oklahoma's largest banking institution. He was already a stockholder. He accepted the post and a few months later was advanced to the presidency. Under his management it made great progress, and at the time of his death had resources of more than $50,000,000.

A short time ago Mr. McGraw was elected a member of the board of directors of the Sinclair Consolidated Oil Corp., the parent company of all the widespread Sinclair interests, which include production, pipe lines, refineries and filling stations.



JAMES J. McGRAW

Notwithstanding his large responsibilities and their demands upon him, Mr. McGraw found time to devote to the upbuilding of his home city and state.

The body of Mr. McGraw was brought to Tulsa on Sunday morning and taken to his home, where it lay in state.

The funeral of Mr. McGraw was held Tuesday morning in Holy Family Church, Tulsa. Notwithstanding it is the largest Catholic church in the Southwest, it was inadequate to hold more than a part of the people who wished to pay their last respects. Solemn pontifical high mass was said, with the Rt. Rev. Francis C. Kelley, Bishop of Oklahoma, as celebrant, assisted by Monsignor Sevens and other priests. Monsignor Sevens, who had known Mr. McGraw for 30 years as an intimate friend, delivered the eulogy.

A special train conveyed the funeral party to Ponca City. A fleet of aeroplanes flew over the city and encircled the train dropping flowers, a tribute from flyers to a man who had done much and would have done more in the interest of aviation. The last rites were conducted in Ponca City, Bishop Kelley officiating at the burial service, and Felix Duvall, attorney-at-law, and a long-time friend of the deceased, delivering the funeral oration.

All Tulsa banks were closed on Tuesday and the city hall and practically all oil company offices were closed until after noon. Ponca City banks and oil companies also suspended business for the day.

Besides his widow, Mr. McGraw is survived by the following relatives: Joseph McGraw, his son; two brothers, Henry McGraw, of Tulsa, vice president of the Gypsy Oil Co., and Thomas McGraw of Newkirk; four sisters, Mrs. Frank Jamieson of Tulsa, Mrs. Robert Jamieson of Ponca City, Mrs. D. J. Donahoe of Ponca City, and Mrs. John J. Hermess of Ponca City.

CHAIRMAN WORK ASKS CO-OPERATION OF GOVERNORS OF ALL OIL STATES

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Mar. 5.—The governors of 20 oil-producing states have been asked by Hubert Work, Secretary of the Interior and chairman of the Federal Oil Conservation Board to cooperate with the Government in its effort to secure uniform federal and state legislation for the practical conservation of the country's natural petroleum resources.

Secretary Work today stated that the Oil Conservation Board believed the report recently submitted by the Committee of Nine to be constructively sound and, further, that the tentative bill drafted by the committee as a part of its report would, if enacted into law, undoubtedly cure many of the existing evils. The committee, however, recommended immediate and further study of the "gas" phase of the oil problem, and in soliciting the co-operation of the state governors, the secretary asserted that the oil board hoped to clarify this particular issue.

In letters to the executives of the 20 oil-producing states, Secretary Work explained that the President's Oil Board was convinced that the necessity for conservation was acknowledged both by the oil industry executives, government scientists, and economists. The oil board in its survey of natural petroleum conditions, and the Committee of Nine, representing the Government, the oil industry and the American Bar Association, the secretary added, had reached certain definite conclusions that conditions today in the oil world were conducive to needless waste and economic distress.

Secretary Work's letter was addressed to the following governors: John E. Martineau, Arkansas; C. C. Young, California; William H. Adams, Colorado; Len Small, Illinois; Edward Jackson, Indiana; Ben S. Paulen, Kansas; Flem D. Sampson, Kentucky; Fred W. Green, Michigan; John E. Erickson, Montana; Richard C. Dillon, New Mexico; Alfred E. Smith, New York; A. V. Donahey, Ohio; Henry S. Johnston, Oklahoma; John S. Fisher, Pennsylvania; Henry H. Horton, Tennessee; Dan Moody, Texas; George H. Dern, Utah; Howard M. Gore, West Virginia, and Frank C. Emerson, Wyoming.

Text of Letter

The letter follows:

"Following an exhaustive inquiry into national petroleum conditions with a view to establishing a proper basis for practical conservation, this board several months ago invited a Committee of Nine, consisting of three representatives of the oil industry, the American Bar Association and the Federal Government, respectively, to formulate a legislative program with this object in view. This committee, as you doubtless are aware, has suggested a constructive program, but recommends:

"'Immediate further study into the matter of the waste of natural gas, in order that legislation may be formulated which will forbid such waste as fully as may be done without working injustice and unreasonable hardship.'

"The trend of thought in the oil industry is decidedly in favor of remedial action. This viewpoint is in accordance with government policy.

"In its report of a year ago, the Federal Oil Conservation Board urged 'active co-operation between the oil-producing states in the study of proposed legislation to the end that uniform laws may be enacted, or even agreements or compacts entered into between the states subject to ratification by Congress.' The Committee of Nine likewise recommended the same course in its report to this board, a copy of which I am inclosing for your information.

"At this time it seems to me that an expression of opinion by the governors of oil-producing states would be opportune, as to the possibility of all the oil-producing states uniting upon uniform state legislation.

"I know that you have given much thought to this vital matter. What we desire, of course, is practical conservation of our petroleum resources by whatever means is most feasible. I would appreciate if you will let this board have your viewpoint, together with such recommendations as you may care to advance.

"I am addressing a similar letter to the governor of each of the oil-producing states."

GOVERNOR MOODY CALLS TEXAS OIL CONFERENCE

HOUSTON, Tex., Mar. 6.—The Texas State Railroad Commission has called a conference of all oil producers, pipe line operators and refiners to be held at Austin, March 10, to discuss remedies for the "greatly distressed condition" of the oil industry in this State. The conference was called on the request of Gov. Dan Moody, who urged that the Railroad Commission, which has charge of the enforcement of all oil and gas laws, do something "to alleviate the acute situation."

Seminole Operators Protest the Sale of Four Osage Tracts

Formal protest was made Tuesday by the Seminole operators' committee in charge of the curtailment program in the Greater Seminole area in Oklahoma, to Hubert Work, Secretary of Interior and chairman of the Federal Oil Conservation Board against including in the list of tracts to be offered for lease at the Osage sale on March 28 and 29 of four quarter sections located in the naval reserve and on which two oil wells have been drilled. The committee asked that, if it be impossible to withhold these tracts from the sale, they be leased subject to the requirements that any wells or wells drilled thereon during the period of overproduction of crude oil, this period to be determined by Mr. Work, be shut in to a production of 50 bbls. per day.

The committee stated in its telegram of protest to Chairman Work that the sale of the four tracts in question will necessitate the drilling of offset wells and the resultant probable opening of a new pool might result in the immediate abrogation of the shut down agreement in the Greater Seminole area.

Oil operators feel that when they are voluntarily curtailing their drilling programs and shutting in production in order to conserve oil and help solve the overproduction problem, the Government, which has been taking a leading part in the movement towards conservation, now has a wonderful opportunity to demonstrate in a concrete way its attitude towards conservation.

DEATH OF ARTHUR LEFEVRE

HOUSTON, Tex., Mar. 6.—Arthur Lefevre, aged 64 years, connected with The Texas Company at Houston since 1913, editor of The Texaco Star and widely known among oil men here, died at his home of pneumonia Sunday. Funeral services will be held Thursday. Mr. Lefevre was a former State Superintendant of Public Instruction.

DEATH OF G. W. WINGATE

KIEFER, Okla., March 3.—G. W. Wingate, an employe of the Prairie Oil & Gas Co. in the Kiefer district, died after a 10-days' illness following a paralytic stroke. He was 61 years old. Mr. Wingate was the father of Clarence L. Wingate, of Tulsa, assistant superintendent of production for the Prairie company.

Kansas Operators Watch Lost Springs

Farthest North Pool in Central Group Attracting Interest. Acreage in Strong Hands and Field Not a Menace

By J. L. Dwyer

While it has not been enough of a success as to attract unusual attention, the Lost Springs Pool of Marion County, Kansas, has for some months been the most active spot in that State. This pool, constituting the farthest north of the central group of producing regions of Kansas was discovered in November, 1926, although the output of the discovery well was shut in for many months owing to the generally unfavorable condition of the crude market, and also to the lack of pipe lines. Now that pipe lines have been built to the pool, and the operations have afforded a much better idea of its possibilities, the general results recorded to date are characterized by some officials as rather disappointing. True, the wells now under way may easily upset this opinion, as a good body of chat has been found, but the general average per well has indicated that while Lost Springs will make money for its producers, it will not startle the Mid-Continent area.

This pool is located at the town from which it derived its name, and is some 24 miles north of the Florence and Sellers Pools of the same county. It was drilled after several oil showings encouraged Winters & Harwood, who succeeded in interesting the Phillips Petroleum Co. of its possibilities, and these interests combined to drill the discovery well. Since that time, the Phillips Petroleum Co. has purchased the interest of Harwood & Winters in the discovery well, and also in the acreage shown on the accompanying map. The concentrated position of most of the acreage is to a large extent responsible for the manner in which this pool has been held in check, and the bulk of the leases are in strong hands.

Production from Chat

The producing formation from which the Lost Springs oil is coming is the chat found at the base of the Mississippi lime. This horizon produces to some extent in the majority of the pools of this region, and in this pool it is found at a depth ranging from 2,300 to 2,450 feet. The average thickness of the chat in Lost Springs is 54 feet, a body which compares rather favorably with the thickness of chat found in the other pools. The thickest body of chat found in this territory was in a well drilled in Section 2-17-4 by Harwood & Winters. This produced only 25 bbls. initially. The thinnest body of chat was found in the discovery well if recent records be correct. The logging of this well (Harwood & Winters' No. 1 Wells Rezineck, SW cor. NW, Section 22-17-4) has been a topic of discussion, and the concensus of opinion gives pay in the chat 2,373-2,379 feet, and 2,391-2,397 feet, two bodies of 6 feet each, with breaks between them. Just how much chat really occurred in the breaks is problematical, and it is possible that they contained a good amount of chat. Thinning of the chat body evidently bears no relation to light wells, and whether or not production is found, is strictly a horizon condition. Some dry holes drilled have uncovered a thick body of chat.

At this time there are 11 producing wells in the district. Ten of these are shown on the map, and the eleventh is located in Section 2-17-4; 2 miles north of the townsite part of the pool. The test of the Independent Oil & Gas Co., NE cor. SE SE, Section 21-17-4, is reported showing for a well, and should it produce, will make the twelfth well for the pool.

There are 23 drilling wells in the region at present, with 15 of them under way on the townsite and the remainder scattered over the outlying region. Strictly speaking, there are two pools, the first close to the discovery well in Section 22-17-4, and the townsite pool, on the site of Lost Springs. The wells around the discovery group have made a larger initial output, and are now making a better average per well. Four wells here are making 650 bbls., while the six wells in the townsite group are making 1,040 bbls. per day.

The first well of record in this part of the state was drilled by the Lindsberg Oil & Gas Co. in its wildcat venture in Section 9-17-4. This well, No. 1 Sangren, NW cor. NW of the section, was completed just about 10 years ago, and official records place February 16, 1918, as the date of completion. It reached a depth of 3,276 feet, and is believed to be very close to granite. The well experienced the usual amount of grief which was the portion of the wildcatter of 10 years ago, and which is not entirely absent in his workings today. The Lindsberg well afforded the first ideas of subsurface conditions in this part of the State, and owing to the rather careless method of logging formations in those days, it only revealed a portion of what might have been uncovered had present day methods of logging and recording formations been in vogue. At that, it rendered some idea of the Marion County subsurface conditions, and upon this meager information, the activity of 1926 was started.

The second well to be drilled in this region was completed in 1921. It was drilled by Forrester and others, and was No. 1 Fay, NE cor. SW, Section 12-17-4. It passed through the chat and was found dry and abandoned at a depth of 2,420 feet. The well was completed March 16, 1921.

The wells in this pool are drilled with cable tools, and owing to the reasonable depth, and the limited amount of casing required, may be completed in an average time of 35 days from the grass roots to the sand, at an average cost of $18,000 per well. After flow stops, the wells have made their production on the pump to date, and many of them have never flowed, and were placed upon the pump immediately upon completion.

The town lot area was marked by only a few wells being started instead of the rush to cover all the lots with derricks which has been the case in many a town lot campaign. There are now nine drilling wells, and four rigs on the lots, and three producing wells have been completed. There are three producing wells offsetting the town lots, and these have ntaurally been offset by drilling operations.

The Phillips Petroleum Co. has over

(Continued on Page 129)

OSAGE SALE MARCH 28 AND 29 PROMISES BIG MONEY FOR TRIBE

A two-day sale of Osage oil leases will be held in Pawhuska, Okla., on Wednesday and Thursday, March 28 and 29, at which 584 tracts, aggregating 92,229.67 acres will be offered at auction to the highest responsible bidders.

The sale will have a number of interesting features aside from the fact that it is a big offering of leases, and will no doubt result in greatly enriching the Osage Indians, already known as "the richest people on earth."

On the first day Tracts 1 to 128, all of them east of Range 7, and Tracts 129 to 305, all of them west of Range 8, will be offered. The west side acreage to be offered on the first day will include tracts in Township 23-7 and 24-7, on which two oil wells were recently drilled by the Kay County Gas Co. on gas leases. The two properties on which the wells were drilled will be among those to be put up at auction, as the natural gas lease gives the Kay County Gas Co. no right to any oil it discovers.

The Kay County Gas Co., drilling for natural gas in the C NE NE SW of Section 22-24-7, uncovered an oil pay at 2,834 feet. It was drilled to 2,899 feet, and on an open flow test produced 1,650 bbls. in 24 hours. It was last reported making 980 bbls. against a back pressure varying between 60 and 100 lbs. The oil is reported to have tested 34.5 degrees at a temperature of 70 degrees, which would make it about a 33 gravity crude, which is several degrees below that of the oil produced in the Burbank Field. The same company drilling for gas in the C SW SE SE Section 0-23-7, found an oil pay at 2,944 to 2,962 feet and was last reported drilling at 2,989 feet. This well was not gauged and it was impossible to give a definite report on its worth as a producer. It showed a 250-bbl. production but this may not be a true estimate of its value as a well. The buyer of these leases will be required to pay the Kay County Gas Co. the amount expended for drilling and equipping the two oil wells, but will be entitled only to the oil produced after 7 a. m. on the date following the sale, provided the leases are approved.

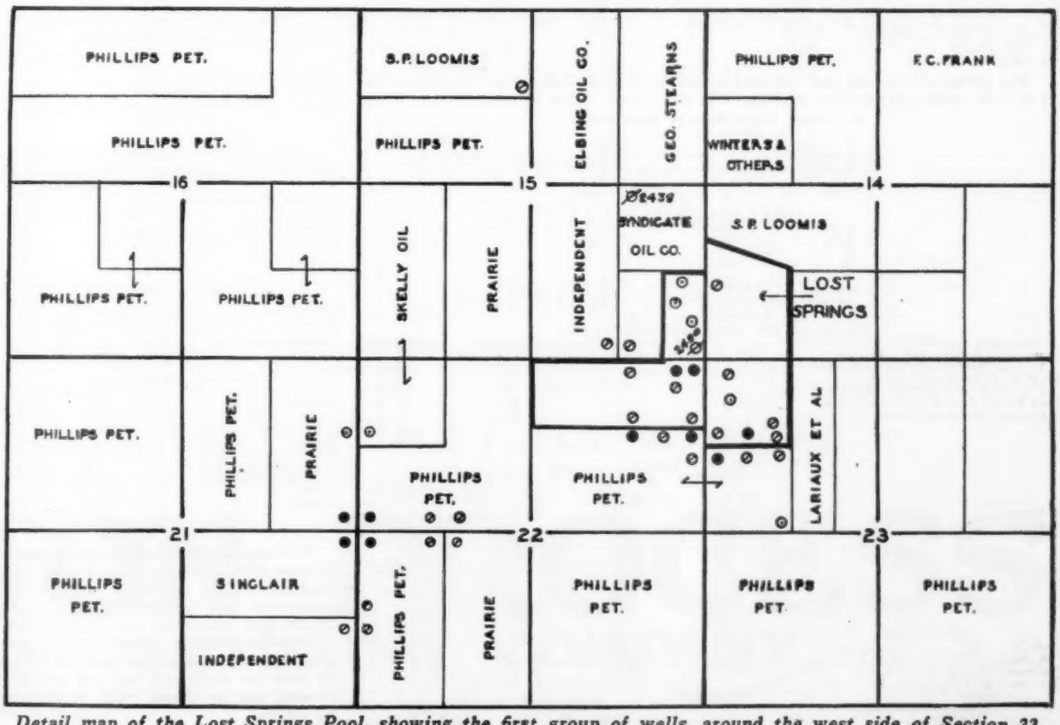
Attractive Acreage

The oil well in Section 22-24-7 is in the so-called Naval Reserve, a tract of land offered the Government by the Osage Tribe as an act of patriotism in the course of the European war, but which transaction the Indians claim was never consummated by the Government.

Tracts in Township 24-7, to be offered, will include Nos. 164 to 169, both inclusive, consisting of all of Section 22-24-7, SE Section 32-24-7, and NW Section 36-24-7.

In Township 23-7, Tracts 149 to 163, both inclusive, will be offered, consisting

(Continued on Page 138)



Detail map of the Lost Springs Pool, showing the first group of wells, around the west side of Section 22, and the more recent development on the townsite.

Technological Control of Refineries

Intricate Processing of Modern Plants With Constant Improvements Emphasize Need of Well-Trained Technical Staffs

By Ernest B. Phillips and Albert E. Miller*
Chief Chemist and Process Chemist, Sinclair Refining Co.

An essential factor in the scheme of technical control is the provision of an experimental plant. In it, small-scale units designed to operate as nearly like refinery counterparts as possible are fitted up so that any desired operation met with in the refinery itself may be carried out but on a much smaller scale. Samples ranging from 1 to 50 gallons in quantity may be required for these operations. Such an experimental plant had best be housed in a separate building designed to reduce fire hazards to a minimum. To this experimental plant are sent all samples of crude and intermediate products from which yields of commercial finished products are desired. Various kinds of distillations, chemical treatment and filtration tests make up a large part of the work performed. The staff must consist of experienced stillmen and treaters who have had long contact with small scale work. They are charged specifically with determining potential yields of products from all actual or proposed refinery stocks. It is from these units that the basic data for the technical control of refinery operations is obtained.

The value of the class of work outlined in the above paragraph can best be illustrated by giving typical examples of method used in controlling certain major operations. As is well known, all producing companies in active fields maintain field scouts whose duty it is to collect samples of crude from every new pool discovered and forward them to the control laboratory. These samples are subjected to routine inspection for the purpose of classifying them and then they are worked up according to the refinery method which would be applied. Inspection reports on field crudes are prepared, types of which are shown below:

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Typical Workups Covering Different Kinds of Crude Oils on Small Experimental Scale

A. Crude From Appalachian Fields.

I. Tests on Crude

Gravity	41.2
Flash	RT
Pour	0
B.s.	0.2%
Sulphur	0.12%
Color	Amber

500 cc. Distillation

Over	154°F.	
10%	253	68.4 gr.
20	320	59.3
30	392	52.2
40	472	47.1
50	547	42.7
Per cent at	221	5.4%
	284	14.9
	392	30.0
	420	31.5
	440	34.0

II. Tower Distillation of Crude
Charge 100 Per Cent Crude—Gravity 41.2

Cut—	Grade	% Crude	Gravity
Over to 46.7	400 End Distillate	35.0	59.1
Over to 45.4	420 End Distillate	38.0	57.9
Over to 44.4	437 End Distillate	41.0	56.8
Over to 43.4	450 End Distillate	43.0	56.2
Bottoms	Reduced Crude	55.6	32.2
Loss		1.4	
		100.0	

Tests on Products

Grade—	400 End	420 End	437 End	450 End	Reduced Crude
Gravity	59.1	57.9	56.8	56.2	32.2
Over	124	126	127	130	500
10 per cent	184	166	191	194	...
20	212	218	225	226	...
30	234	241	250	252	...
40	255	268	274	277	...
50	276	287	298	307	...
60	296	310	322	333	...
70	316	336	353	360	...
80	339	359	378	390	...
90	364	386	406	419	...
End	399	420	437	450	...
Per cent at 221	24.0	21.5	18.5	18.0	...
Per cent at 284	54.0	49.0	44.5	42.5	...
Per cent at 392	...	92.0	85.0	81.0	...

The yields of kerosene, fuel oil, wax distillate and cylinder stock from this crude are so well known that further working of reduced crude is not necessary.

B. Crude From Mid-Continent Fields

I. Tests on Crude

Gravity	35.0
Flash	RT
B.s.	0.3%
Sulphur	0.39%
Color	Dark Green

500 cc. Distillation

Over	136°F.	
10%	194	75.2 gr.
20	326	60.0
30	409	51.0
40	503	43.3
50	602	37.6
50 per cent bottoms		32.2

II. Towerstilling Crude
Charge 100 Per Cent Crude—Gravity 35.0

Cut and Grade—	% Crude	Gravity
Over to 43.7—400 end distillate	29.0	59.3
43.7 to 40.5—41 degrees kerosene	12.0	41.7
Over to 41.9—91/392 goods	33.0	57.3
41.9 to 40.9—41 degrees kerosene	5.0	41.6
Over to 41.0—450 end distillate	36.0	55.0
Bottoms—Reduced crude	62.5	26.0
Loss	1.5	....
	100.0	

I. Tests on Products
Gasolines

Grade—	400 End	91/392 Goods	450 End	7% Casinghead 93% 91/392 Goods
Gravity	59.3	57.3	55.0	58.8
Over	130	135	140	113
10%	169	180	188	168
20	206	212	221	202
30	230	237	250	231
40	254	264	274	252
50	276	288	304	281
60	298	312	332	312
70	314	338	358	338
80	333	365	384	365
90	359	390	418	390
End	399	430	452	430
Per cent at 221	26.0	23.0	20.0	27.0
Per cent at 284	54.0	48.0	43.0	51.0
Per cent at 392	...	91.0	83.0	91.0

Kerosenes

After Making—	400 End	91/392 Goods
Gravity	41.7	41.6
Flash TCC	130	120
Viscosity	400	465
Initial	350	394
10%	400	418
20	425	435
30	434	442
40	440	446
50	448	450
60	452	454
70	457	457
80	464	462
90	478	470
End	496	488

C. Gulf Coast Crude

I. Tests on Crude

Gravity	21.6
Flash	195
Fire	235
B.s.	0.2%
Pour	0
Sulphur	0.35%

II. Distilling Crude
Charge 100 Per Cent Crude—Gravity 21.6

Cut and Grade—	% Crude	Gravity
Over to 26—Gas oil	29.0	29.6
26 to off—Lub distillate	59.6	20.7
Bottoms—Flux	10.3	12.1
Loss	1.1	....
	100.0	

III. Rerunning Lub Distillate Over Lye
Charge 59.6 Per Cent Crude—Gravity 20.7

Cut and Grade—	% Charge	% Crude	Gravity
Distillate—Lub Stock	94.0	56.0	21.0
Bottoms—Caustic fuel	5.0	3.0	9.0
Loss	1.0	0.6	....
	100.0	59.6	

IV. Reducing Lub Stock for Test Bottoms

In order to work up lub stock from Section III, a predetermined ratio of production of different grades must me adopted. This is usually taken as average of plant production over a period of time. The breakup desired in this particular case is 1.7 parts 750 stock, 12.8 parts 500 stock, 77 parts 300 stock and 1.7 parts 200 stock. On the above basis the lub stock produced under Section III will show:

1. Reducing for 750 Stock

Cut and Grade—	% Charge	% Crude	Gravity
Distillate—Lub stock	45.0	25.2	23.4
Bottoms—750 stock	54.0	30.2	18.8
Loss	1.0	0.6	....
	100.0	56.0	

One and seven-tenths per cent of the crude was set aside as 750 stock and remainder of distillate and bottoms mixed for new charging stock.

2. Reducing for 500 Stock
Charge 53.7 Per Cent Crude—Gravity 21.1

Cut and Grade—	% Charge	% Crude	Gravity
Distillate—Lub stock	35.0	18.79	24.2
Bottoms—500 stock	64.0	34.37	19.0
Loss	1.0	0.54	....
	100.0	53.70	

Five hundred stock equivalent to 12.8 per cent of crude was set aside for this grade and distillate stock mixed back with the residue.

3. Reducing for 300 Viscosity Stock
Charge 40.37 Per Cent Crude—Gravity 21.6

Cut and Grade—	% Charge	% Crude	Gravity
Distillate—Lub stock	30.0	12.11	25.4
Bottoms—300 stock	69.0	27.86	20.2
Loss	1.0	0.40	....
	100.0	40.37	

Three hundred viscosity stock equivalent to 17.04 per cent of crude was held out and balance mixed with distillate fraction.

4. Reducing for 200 Viscosity Stock
Charge 22.93 Per Cent Crude—Gravity 22.7

Cut and Grade—	% Charge	% Crude	Gravity
Distillate—Lub stock	40.0	9.17	26.4
Bottoms—200 stock	59.0	13.53	20.5
Loss	1.0	0.23	....
	100.0	22.93	

Two hundred viscosity stock equivalent to 1.7 per cent of crude was set aside for this grade and balance mixed with distillate.

5. Reducing for 100 Viscosity Stock
Charge 21.0 Per Cent Crude—Gravity 22.9

Cut and Grade—	% Charge	% Crude	Gravity
Distillate—Gas oil	19.6	4.12	27.2
Bottoms—100 viscosity stock	79.4	16.67	21.4
Loss	1.0	0.21	....
	100.0	21.00	

Tests on Products

Grade—	750 Stock	500 Stock	300 Stock	200 Stock	100 Stock
Gravity	18.8	19.0	20.2	20.6	21.4
Flash	385	365	335	315	280
Fire	445	425	380	360	315
Viscosity at 100	768	522	314	213	110
Pour	5	0	0	0	0

Summary of Products

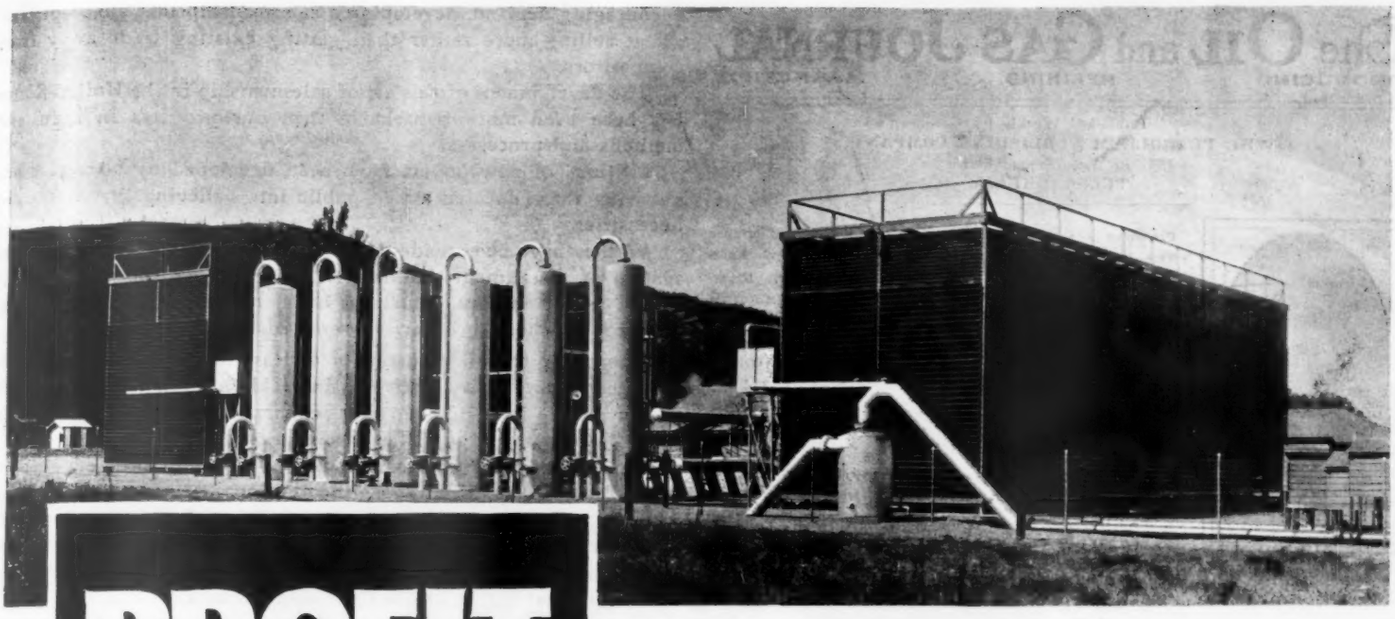
Grade—	% Crude	Gravity
Natural gas oil	29.00	29.6
Cracked gas oil	4.12	27.2
100 viscosity stock	16.67	21.4
200 viscosity stock	1.70	20.5
300 viscosity stock	17.04	20.2
500 viscosity stock	12.79	19.0
750 viscosity stock	1.70	18.8
Fuel	13.30	11.1
Losses	3.68	....
	100.00	

With reports of the kind shown above refinery executives are able to keep fully informed on the quality of current new production and to pick, when possible, grades best suited for the plant. Over a period of years a file will be accumulated which includes type crude oils from all over the world and any new pool discovered can be placed with relation to all others.

Control of Operations

Next in importance to obtaining a knowledge of the possible products that can be obtained from any given crude, such as described above, comes the control of daily routine operations in the refinery. The superintendent in charge of operations has daily reports made up showing the quality of all new and finished stocks on hand. These must of necessity be qualitative in nature and serve only to protect against sudden changes in crude supply or faulty operations in individual units of the plant. If, however, a "bogey sample," amounting to at least a barrel, representing an aliquot portion of each day's stock, is made up to cover a month's operation, materials will be at hand for independent workups of the stocks into the products

(Continued on Page 122)



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CREATING DEMAND

The oil industry has been fascinated by the annual increase in motor cars with its assurance of ever-growing demand for gasoline.

Comparatively little attention has been given to the more significant gain in gasoline consumption from greater use of the cars.

A few years back the average consumption per car was about 350 gallons a year. Five years ago, in 1923, it had risen to 439 gallons per car. In 1927 the average consumption of gasoline per car had grown to 544 gallons a year, an increase in half a decade of 105 gallons a car.

Just think of a market where the consumers are buying and using on an average nearly 25 per cent more of the product than they did five years ago.

That average of 105 gallons more gasoline used per car multiplied by 23,000,000 cars means an addition of 2,415,000,000 gallons in consumption above the average five years ago.

Today half as many more autos are using almost twice as much gasoline compared to five years ago.

And this despite the admission that "the demand for petroleum products has increased through no effort of the oil industry."

What might that increase have been if the oil industry had been as active in encouraging motorists to wider use of their cars as the railroads have in attracting tourist and resort travel to their trains.

When the oil business was on a kerosene basis the enterprising pioneers did not rest until the little kerosene lamp was distributed to the ends of the earth so that the market for kerosene might be widened.

The automobile industry saved the oil business any such trouble in making a market for its gasoline. The oil industry for years was kept busy keeping up with the demand. Its market came to its door. Its energies were concentrated first on maintaining a supply and next in a competitive scramble for a continually growing demand.

Intensive application to efficiency in production, with salesmanmanship engrossed in competition for existing markets instead of endeavoring to enlarge demand, naturally resulted in overproduction and the accumulation of a burdensome surplus.

Other industries and businesses have had to create markets by encouraging demand, developing a salesmanship that aimed primarily at selling more rather than getting existing trade away from competitors.

The development of this art of salesmanship in the United States has been even more remarkable than our progress in industrial methods and processes.

Millions of new buyers have been developed by attractive advertising that educated a vast public into believing that wants are necessities.

Wishes have been made realities to this army of buyers by the system of installment purchases. Spending has become systematized, less haphazard. Business has been multiplied, industry enlarged and general prosperity promoted.

Meanwhile the oil industry, or at least the marketing end of it, has been swapping its customers in reckless competition, oblivious to the possibilities of enlarging its market by the same methods other businesses and industries were so successfully employing.

This is not intended as criticism but as a helpful suggestion. Considering the history of gasoline development, created by another industry and threatening to tax the abilities of the oil industry to maintain an assured supply for a steadily enlarging demand, there was no incentive for such salesmanship as was needed by other businesses that had to create their own markets.

But with the accumulation of a surplus production that removes any need for effort to assure supply but rather demands the finding of a larger market the oil industry may well find an example in the successful salesmanship of other industries.

If the consumers of gasoline, the motoring public, have voluntarily increased their consumption of it nearly 25 per cent in five years, is it not reasonable to assume that modern salesmanship and advertising inviting further use to the greater pleasure and advantage of the motorist and his family would lead to a much larger increase in gallonage per car?

Spring will be here in a few weeks. The automobile manufacturers are spreading their most alluring advertising everywhere. Motorists are thinking of new cars or making plans for the summer.

Why should not the gasoline companies take advantage of the season to advertise the delights of blossom time along the country highways, to picture the beauty that awaits the explorer of Nature within a few hours ride of centers of population?

Railroads and resorts employ pen, pencil and camera to draw the eye of potential patrons to mountain, lake and sea with tantalizing vistas to be viewed along the way.

With the thousands upon thousands of miles of highway available to the motorist but known to only a relatively few what an opportunity there is for the most effective advertising by oil companies leading to larger uses of gasoline.

Intelligent co-operation could make it national but there is no need to wait for that. Local co-operation spending the money now expended in trying to get customers away from each other would lead to an increase in gasoline sales that would benefit all.

The radio might be employed, as well as the newspapers and other forms of advertising to tell motorists of pleasurable places to go, how to get there, the condition of roads and accommodations.

That sort of gasoline advertising would be welcomed by motorists because it would give them information they would like to know.

In the heat of summer the appeal could be made in news and views of cool groves, easily accessible, for week-end or evening trips.

Nor need business be neglected. Shippers could be informed of freight routes and advantages by motor truck, bringing more business to the gasoline salesman.

The automobile business and the hotel business could be interested for mutual benefit.

The whole plan could be made educative and helpful all around, beneficial to the gasoline companies, to the motorists themselves and to the oil industry as a whole, because anything that increases the sale of gasoline is of direct benefit to the oil producer as well as the refiner and distributor.

Best of all, it would offer an outlet for ability and energy lost in wasteful competition within the industry that would be profitably employed in multiplying consumption rather than in dividing it.

DRESSER COUPLINGS

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Recent Discoveries Awaken Interest in Brown County, Texas

By James H. Dameron

FORT WORTH, Tex., Mar. 5.—Three recent discoveries in central western Brown County have served to make things interesting in that county in recent weeks and have resulted in rapid drilling of offsets.

This section of Brown County came into prominence more than a year ago with the discovery of the prolific Fry sand pool. That discovery was followed by the opening of the Smith-Ellis Pool to the northeast. The latter pool did not prove as large or prolific as the Fry Pool, however.

None of the new discoveries gives promise of ranking along with the Fry Pool or the Smith Ellis Pool.

The Pandem-Hutton Pool, discovered by the Pandem Oil Co. in the E. L. Betts Survey, was the first of the three recent discoveries and threatened for a time to follow close behind the Smith Ellis Pool in good wells. Later drilling, however, forced a downward revision of estimates in that pool. The cream of the production brought in so far has been on the Pandem Oil Co. leases and M. L. Richards and Syndicate Oil Co. were the only two other operators in the pool.

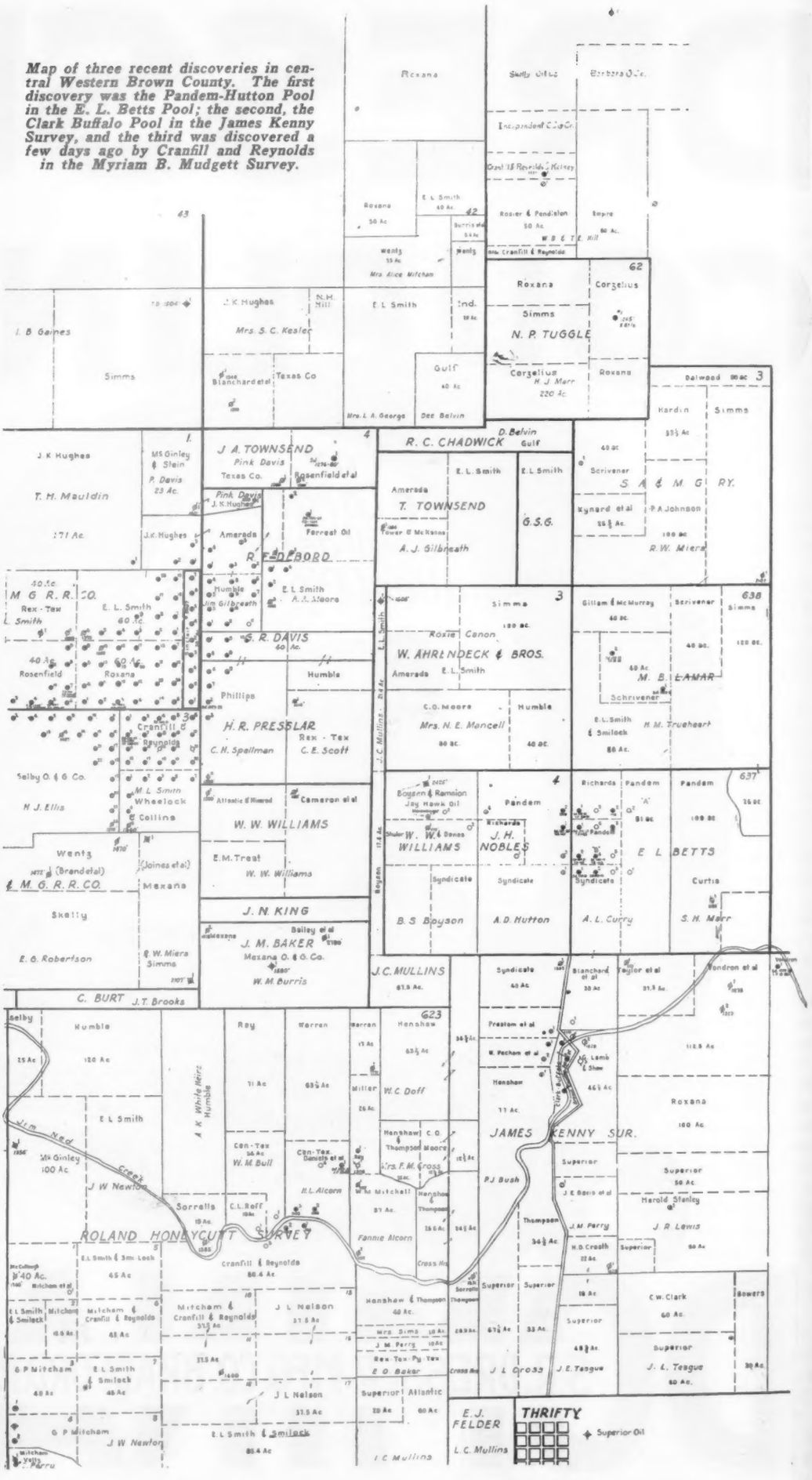
Clark-Buffalo Oil Co.'s No. 1 on the Brown County fee land in the James Kenny Survey discovered a new Fry sand pool just a few days ago with a 500-bbl. well. And with rapidity characteristic to that county operations were started up on all sides of the discovery well with a result the pool has been defined to the east and northeast by dry holes offsetting the 500-bbl. well.

Clark Buffalo Co. owned a half interest in the 11-acre tract and after completion of the discovery well that company purchased the other half interest in the lease from E. P. Woodruff and James L. White for a reported cash consideration of $22,000. During the past week Clark-Buffalo Co. completed No. 2 for a 50-bbl. well and No. 3 for a 100-bbl. producer. No. 4 is to be spudded immediately. A fifth and final test will probably be put down on the lease.

One location to the northeast G. Lamb and Shaw's No. 1 was a failure at 1,110 feet and was abandoned. The direct east offset likewise was a failure at 1,228 feet and No. 3 on the 46-acre lease is an abandoned location. Northwest of the discovery well, Preston and associates' No. 1 appears to be a failure. The well had a slight showing in broken sand at 1,122-33 feet and is drilling at 1,181 feet.

Directly to the west, W. Pecham and associates' No. 1 was good for 100 bbls. initial from Fry sand at 1,109-16 feet, total depth 1,117 feet. Those operators are drilling the south offset to their well. Further south, J. E. Davis and associates' No. 1 J. M. Perry appears to be a failure. It has a showing of oil in sand at 1,078-81 feet and is drilling at 1,085 feet.

On north of that pool, Cranfill and Reynolds and Frank Kelsey opened another Fry sand pool with a 50-bbl. well just a few days ago. Dry holes to the northeast and east and a 5-bbl. well to the southeast will cut the pool off in that direction. A south offset to the new well is being drilled by Roeser and Pendleton.



Map of three recent discoveries in central Western Brown County. The first discovery was the Pandem-Hutton Pool in the E. L. Betts Pool; the second, the Clark Buffalo Pool in the James Kenny Survey, and the third was discovered a few days ago by Cranfill and Reynolds in the Myriam B. Mudgett Survey.

RENTAL NOT COMPENSATION

AUSTIN, Tex., Mar. 3.—In affirming judgment of the El Paso Appellate Court in the case of The Texas Company vs. Ramsower and others, from Eastland, it was held by the Supreme Court that payment of rental to sustain an oil lease is not compensation for drainage.

SUPPRESS FRENCH OIL DECREE

The French Chamber of Deputies Oil Committee has voted to suppress a decree granting priority to French oil importers. The United States and British governments had protested against the decree.

New Pools in Wichita Falls District

Two Opened in Wilbarger County and One in Young County. Deeper Drilling in the Panhandle Fields

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Mar. 5.—Ranger and Wichita Falls districts were featured by the opening of new pools while deepening of old wells covered the report from Panhandle. Production in the three districts showed an increase of 60 bbls. mainly due to the increases in the light oil districts of Wichita Falls and Ranger. Panhandle suffered another slump and was off 1,500 bbls.

Three new pools were opened in the Wichita district, one by The Texas Company in Wilbarger County and the second by the Panhandle Refining Co. in Young County. Incidentally the Panhandle company's Young County discovery is the second pool to be opened by that company this year. The third pool to be opened was brought about when Fain and McGaha's No 3 W. T. Waggoner, Section 50, Block 4, H.&T.C. Railway Survey in Wilbarger County, was brought in as a nice producer. The well was placed on the pump Monday and made 60 bbls. from sand at 1,288-95 feet. It is in wildcat territory and opens up a nice strip of country for drilling. It likewise adds to the neat string of pools opened by that company.

The second pool opener in Wilbarger County was The Texas Company's No. 1 D. Waggoner in the N half of Section 43, Block 4, M.E.P.R.R. Survey, Abstract 491. The well swabbed 136 bbls. from sand at 2,356-75 feet and looks good for 100 bbls. easily. The nearest production is 2 miles southwest and another pool lies 3 miles southeast.

Young County Pool

Next in line was Panhandle Refining Co.'s discovery in Young County. No. 1 P. K. Pittman, northwest corner of the east 80 of the C. W. Matthews Survey, Abstract 1,484, found an oil sand at 716-25 feet. The hole is standing full of oil and 550 feet of the oil rose in 24 hours. It is estimated the well will be a 100-bbl. producer. Production is 2 miles southeast and 2½ miles southwest and about 1 mile northeast. The crude will test around 40 gravity, according to reports from the field. The well at present is shut down for storage and awaiting the completion of a line being extended to it by the Pure Pipe Line Co.

This is the second discovery for the Panhandle during 1928. Its first wildcat well was brought in when its No. 1 Garvey in Archer County opened up 700-foot production in Section 1,856, T.E.&L. Survey. Several locations are being made offsetting the Young and Wilbarger Counties discoveries.

Young County is being favored with a brisk play as the result of developments there in the recent weeks. The most interest at this time is centered around the Loving area. During the week Roy I. Carter and Allday Oil Corp. purchased the south 25 acres of the east 65 acres of Section 1,489, T.E.L. Survey, Young County, from Wooten and Reid for a cash consideration of $60,000. The latter operators brought in a 250-bbl. grass-root well on this property which was followed by considerable drilling for the high gravity 500-foot pay. The area was discovered by Pennell Oil Co. and J. C. Cunningham.

Gohlke Pool Activity

The Gohlke Pool in Archer County continues to be the most active in that county. One of the best completions in several days in that pool was made when D. O. Johnson's No. 1-B L. F. Wilson, Block 19, Geraldine Townsite Survey, started off swabbing at the rate of 400 bbls. daily from sand at 1,554-70 feet. Several good completions were made in the pool during the past week.

Opening of another pool in Brown County and the activities in the Blake Pool in the same county brightened the Ranger district report. H. P. Evans' No. 1 Galyan, about 7 miles west of Brownwood and a mile north of the Childress Pool, has a hole full of oil from sand at 950-53 feet. The well is being tubed and will be tested during the current week. Two years ago Evans opened the Childress Pool and shortly afterwards sold his interest in the property.

Gilman and McMurray's No. 3 Roy Hickman in the Blake Pool revived interest in that pool when the well was shot with 20 quarts at 1,246-67 feet and made 700 bbls. the first 17 hours. It was also the bigegst producer of the week in Brown County.

In Shackelford County Tennehill Oil Co.'s No. 1 Matthews, in the SE cor. of Section 34, and about 5 miles north of Albany, opened up new production in that sector with a 372-bbl. well at 1,140-55 feet. The nearest production is about a mile south where three or four shallow wells were completed making around 10 bbls. each.

The Clark-Buffalo Pool opened about a week ago by Clark-Buffalo Oil Corp. on a 11-acre tract owned by Brown County, proved disappointing. Failures were reported on the north, northeast, east and to the northwest. It appears at this time the cream of production from this pool will be from the 11-acre tract owned by the discoverers.

NORTH CENTRAL TEXAS

Estimated Daily Average Production for the Week Ending March 4

Panhandle—	
Carson County	7,180
Gray County	18,345
Hutchinson County	46,090
Moore County	10
Potter County	25
Wheeler County	975
Total this week	72,625
Total last week	74,145
Decrease	1,520
Wichita Falls—	
Archer County	19,748
Baylor County	92
Clay County	511
Cooke County	3,561
Jack County	1,408
Montague County	9,316
Throckmorton County	1,021
Wichita County	26,080
Wilbarger County	10,129
Young County	8,679
Total this week	80,544
Total last week	80,420
Increase	124
Ranger district—	
Brown County	13,761
Callahan County	3,877
Coleman County	1,862
Comanche County	1,295
Palo Pinto County	457
Ranger	10,133
Shackelford County	7,954
Stephens County	8,559
Total this week	47,898
Total last week	46,442
Increase	1,456
Grand total this week	201,067
Grand total last week	201,007
Increase	60

Panhandle Operations

One of the most interesting bits of news coming from the Panhandle during the past week was when Antelope Creek Oil Co.'s No. 2 J. M. Sanford, northwest corner of the south 160 acres of Section 82, Block 46, H.&T.C.R.R. Survey, Hutchinson County, was drilled deeper and completed as a 600-bbl. well. This well was completed during the middle of last December making 5 bbls. of oil and 100 bbls. of water. It was drilled deeper to 3,100 feet and swabbed 600 bbls. of oil and 100 bbls. of water.

In the northwestern part of Gray County and about 6 miles northwest of the Pampa Pool, Magnolia Petroleum Co.'s No. 1 Wall, NE cor. Section 162, Block 3, I.&G.N. Survey, started off showing as a good wel from granite wash and lime pay at 3,350-53 feet. The well made 100 bbls. of oil the first 9 hours. Later, while flowing at the rate of 10 bbls. per hour, it started showing water and is now showing 75 per cent water.

(Continued on Page 139)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending March 3, 1928

Company, Well, Farm, Name, Section and Block—	Remarks—
ARMSTRONG COUNTY	
United Oil & Trust Co.'s No. 1 J. P. Reck, Sec. 162, Blk. 4, H.&G.N. Sur.	S.D., 3,780 ft. for fishing tools.
BRISCOE COUNTY	
C. S. Rice's No. 1 J. C. Anderson, SE cor. NW NW, Sec. 22, Blk. B-3, B.S.&F. Sur.	S.D., 1,620 ft.
CARSON COUNTY	
Amarillo Oil Co.'s No. 1 E. S. Polling, C NE of N 80 acres of NE, Sec. 12, Blk. Y-2, B.&B.	Rig.
Amatex Dev. Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y	T. A., 2,110 ft.
Empire G. & F. Co.'s No. 1-A Texas Co. fee, C NE, Sec. 60, Blk. 4, I.&G.N. Sur.	Drlg., 1,670 ft.
Empire G. & F. Co.'s No. 1 White Deer Inv. Co., C SE of Sec. 51, Blk. 4, I.&G.N.	Drlg., 2,000 ft.
Empire G. & F. Co.'s No. 1 J. C. Noel, C SW, Sec. 41, Blk. 4, I.&G.N Sur.	Location.
Empire G. & F. Co.'s No. 1 E. W. Sheridan, C NE, Sec. 242, Blk. B-2, H.&G.N. Sur.	Location.
Marston Oil Co.'s No. 1 J. L. Noel	Drlg., 2,930 ft.
Skelly Oil Co.'s No. 8 H. Schafer, NE SW SW, Sec. 88, Blk. 4, I.&G.N. Sur.	Rig.
The Texas Co.'s No. 1 W. H. Cobb, NE SE SE, Sec. 202, Blk. 3, I.&G.N. Sur. (Lease S 100 A SE)	Drlg., 1,740 ft.
CASTRO COUNTY	
Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE¼ Sec. 333, Blk. M-6, S.K.&K. Sur.	S.D., 510 ft. for csg.
CHILDRESS COUNTY	
Hoover & Calloway's No. 1 O. L. Tucker, Sec. 736, Haggard Sur.	Spudded and S.D.
C. L. Sloane et al's No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	Set 6-in., 2,902 ft.; S. D. 3,745 ft.
COTTLE COUNTY	
Exploration Co.'s No. 1 Richards	Spudded and S.D.
DALLAM COUNTY	
Wood Bros. et al's No. 1 Capitol Synd., Sec. 19, Blk. 17	Hole full wtr., 4,007-4,127 ft.; S.D., 4,360 ft.
Marland Oil Co.'s No. 1 A. M. James, C SW W ½ Sec. 21, S. H. McElreath Sur.	Drlg., 3,750 ft.
Marland Oil Co. et al's No. 1 Capitol Synd., Sec. 36, Blk. 18, Capitol Synd. land	S.D., 3,500 ft.
DONLEY COUNTY	
A. T. Drlg. Co.'s No. 1 F. E. Harrington, Sec. 39, Blk. 3-C	1,200 ft. wtr., 3,115-22 ft.; show gas, 3,140-60 ft.; dry G.W., 3,-200-93 ft; T.D., 3,498 ft; U.R. for 5-in. csg. 30 ft. off bottom.
FLOYD COUNTY	
Explin. Co.'s No. 1 S. H. Boone, C. C. H. Johnson Sur.	Spudded and S.D.
Explin. Co.'s No. 1 Land & Cattle Co.	S.D., 730 ft. for orders.
Hoffer Oil Corp.'s No. 1 Nelson	Spudded and S.D.
GRAY COUNTY	
Archer Blake's No. 1 Turneaux, SW cor. Sec. 111, Blk. B-2	S.D., 255 ft.
Bay Shore Oil Co.'s No. 1 C. W. Bradford, Sec. 143, Blk. 2-B	T.D., 2,666 ft; S.L.M., shot with 10 qts. to loosen bit and 8-in. collapsed; S.D., 2,795 ft.
Biggs et al's No. 1 Morse, SW cor. Sec. 3, Blk. 26, H. &G.N. Sur.	S.D., 410 ft. for water.
Cole O. & G. Co.'s (was Magdalene Oil Co.'s) No. 1 J. E. Williams, Sec. 17, Blk. 1	S.D., 3,860 ft.
Danciger O. & R. Co.'s No. 7 W. Jackson, Sec. 88, Blk. B-2, H.&G.N. Sur.	3,000 ft. T.D.; making 5,000,000 ft. gas from 2,779-3,000 ft. and 5 bbls. oil; stdzng., 3,000 ft.
Danciger O. & R. Co.'s No. 9 W. Jackson, NW cor. NE NW, Sec. 88, Blk. B-2	Drlg., 2,760 ft.
Danciger O. & R. Co.'s No. 10 W. Jackson, NE cor. NW NW, Sec. 88, Blk. B-2	Drlg., 2,400 ft.
Danciger O. & R. Co.'s No. 1 W. Crank, SW cor. NW, Sec. 163, Blk. 3, I.&G.N. Sur.	Rig.
Danciger O. & R. Co.'s No. 1 A. Chapman, SW cor. NW, Sec. 7, Blk. 26, H.&G.N. Sur.	U.R. 8¼-in. csg., 1,510 ft; drlg., 1,930 ft.
Danciger O. & R. Co.'s No. 1 C. W. Bradford, NE cor. SE, Sec. 123, Blk. B-2, H.&G.N. Sur.	Drlg., 2,320 ft.
Danciger Oil Co.'s No. 1 J. S. Morse, SE cor. NE SW, Sec. 2, Blk. 26, H.&G.N.	Rig.
Delaney et al's No. 3 W. Jackson, SE cor. NE SW, Sec. 88, Blk. B-2	Drlg. plug, 2,884 ft.
Delaney et al's No. 6 Jackson, SW cor. E half, SW, Sec. 88, Blk. B-2, H.&G.N. Sur.	Fish. bit, 2,600 ft.
Donley Gray Oil Co.'s No. 1 J. W. Gordon, Sec. 79, Blk. 3	Wtr., 3,380 ft. and 3,430 ft; show oil; H.F.W., 3,650 ft; T.D., 3,-870 ft; U. R., 6-in. csg., 3,852 ft; drlg. U.R. lugs, 4,050 ft.
Delmar Oil Co.'s No. 1 F. Foster, NW cor. SW, Sec. 55, Blk. B-2, H.&G.N. Sur.	Building rig.
Edwards et al's No. 1 E. J. Case, NE cor. Sec. 182, Blk. B-2, H.&G.N. Sur.	70,000,000 ft. gas, 2,512-2,630 ft; drlg. by bit, 3,028 ft; 1,000 ft. oil in hole; top G.W., 3,034 ft; S.D., 3,030-45 ft; drlg. ahead.
Empire G. & F. Co.'s No. 1 A. Barrett, C SW, Sec. 132, Blk. 3, I.&G.N. Sur.	Cmtd. 8¼-in. csg., 2,163 ft; drlg., 2,535 ft.
Empire G. & F. Co.'s No. 1 E. J. Case, C NE, Sec. 180, Blk. B-2, H.&G.N. Sur.	Drlg., 2,160 ft.
Empire G. & F. Co.'s No. 1 S. A. Cobb, NW cor. NE, Sec. 64, Blk. 25, H.&G.N. Sur.	Cmt. 10-in. csg., 1,756 ft.
Empire G. & F. Co.'s No. 1 T. Cobb-"B," C NW, Sec. 178, Blk. 3, I.&G.N. Sur.	Location.
Empire G. & F. Co.'s No. 1 C. A. Bell, C SE, Sec. 134, Blk. 3, I.&G.N. Sur.	Drlg., 2,335 ft.
Empire G. & F. Co.'s No. 1 Bender, SE cor. Sec. 164, Blk. 3, I.&G.N. Sur.	Top lime, 2,507 ft; drlg., 2,860 ft.
Empire G. & F. Co.'s No. 1 A. J. Dauer, NW SE SE, Sec. 236, Blk. B-2, H.&G.N. Sur.	Building rig.
Empire G. & F. Co.'s No. 1 Holmes, C NE, Sec. 179, Blk. 3, I.&N.G. Sur.	Cellar.
Eslick et al's No. 1 Mrs. J. A. Hopkins, NW cor. W 80 acres of SW ¼, Sur. 84, H.&T.C., Blk. B-2	Set 12½-in. csg., 510 ft; drlg., 1,200 ft.
Gibson Oil Corp.'s No. 3 J. B. Bowers, 1,650 ft. from E line and 990 feet from S line, E half, Sec. 92, Blk. B-2	Drlg., 2,915 ft.
Gibson Oil Corp.'s No. 9 J. B. Bowers, NE cor. Sec. 92, Blk. B-2, H.&G.W. Sur.	Drlg., 2,135 ft.
Gibson Oil Co.'s No. 1 G. Pierce, SE cor. Sec. 149, Blk. B-2, H.&G.N. Sur.	Cellar.

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Fisher County Three-Mile Extension

Producer Found to the East of the Discovery Well. Irion County Completion Encourages Wildcatting Campaign

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Mar. 5.—Fisher, Irion and Winkler Counties played under West Texas' spotlight and were the most closely followed areas in West Texas.

Fisher County came into prominence late in the week when Cranfill & Reynolds and Sun Oil Co.'s No. 1 J. A. Young, NE cor. Section 208, Block 1, B.B.B.C.R.R. Survey, swabbed 100 bbls. in five hours from sandy lime pay at 3,106-18 feet.

This well is approximately 3 miles east of The Texas Company's No. 1 Stevens in the SE cor. of Section 79, Block 1, H. &T.C.R.R. Survey. The Texas Company well is the first producer in Fisher County and is pumping 235 bbls. daily.

No. 1 Young, which extends production 3 miles to the east, swabbed 100 bbls. from 9 p.m. Sunday, to 2 a.m. Monday and the oil could not be lowered less than 200 feet from bottom. During the next four hours 1,000 feet of oil rose in the hole. The well is now standing with 2,500 feet of oil in the hole and 5 3/16-inch casing is being underreamed from 3,079 to 3,100 feet.

The owners of the well own four sections solidly around the well and 3½ additional sections surrounding the four sections. This well was regarded as one of the most important in West Texas by virtue of its finding production 3 miles from the discovery well. Sinclair Oil & Gas Co. is scheduled to spud in the south offset to The Texas Company well some time this week. Sinclair company has acquired approximately 1,200 acres around the two wells.

Irion County Discovery

The Irion County discovery, while not of a sensational nature, is being followed closely. It is P. E. Hill and associates' No. 1 Harlan Horney, Section 2, Block 3, H.&T.C. Survey. The well went through soft blue shale into sand at 1,270 feet. The sand showed a good green oil free of sulphur that tested 35.5 gravity. Around 600 feet of fluid, most of which was water, was standing in the hole when the well was shut down awaiting orders from the owners.

A test will probably be made Monday. The hole is open below 1,134 feet and a decision is to be made whether a liner or 6⅝-inch casing will be run. The hole is reported to be caving badly. Regardless of whether the well makes a producer or not it is generally believed it will bring about considerable more wildcatting in that area. The well is 60 miles from the nearest production in Reagan County and leasing activity around it has been carried on in a rapid manner.

No. 1 Horney is 2 miles east of Mertzon on the Orient Railway. Should a pool be developed there the field would afford a gravity pipe line outlet similar to the condition that prevails in the Big Lake Pool. That country east of Mertzon is on a gradually rising hill and it was pointed out that a gravity system could be extended to loading racks on the railroad in the event commercial production was opened.

Hendricks Extension Surprises

Hendricks, in Winkler County, easily claimed the attention of all interested in the active area. While the pool was expected to be extended north by wells drilling in Section 33 of Block 26, the size of the extension wells came as a distinct surprise. Cranfill & Reynolds' No. 1 Hendricks-C, SE SW SW, Section 33, Block 26, blew in at an estimated rate of 7,000 to 8,000 bbls. daily from sand topped and barely scratched at 2,733 feet. The well was brought under control and is now shut in pending the erection of storage.

It had the big gas at 2,718 feet and mud and water had been pumped into the well for a week before it was finally shut in under great pressure. When it was opened for the test it blew the connections off and blew wild for a few hours.

While water continues to intrude in the Hendricks wells, the extension wells and Independent Oil & Gas Co.'s well in Section 36, Block B-5, are causing students of the field to revise their estimates upward on the peak of the pool.

Independent company's No. 1 McCabe, SE cor. NW NW, Section 36, Block B-5, topped the gas at 2,423 feet and is now shut down at 2,425 feet with a fishing job. The 10,000,000 feet of gas blew the tools up in the hole and stuck them 180 feet off bottom. No new developments were reported from the Amerada Petroleum Corp.'s No. 1 Walton on the east. The south offset to Cranfill & Reynolds' well in Section 33, Atlantic Oil Producing Co. and Collett's No. 1-F in Section 40, is being cored at 2,740 feet.

Hendricks declined 11,795 bbls. in daily average production during the past seven-day period due mainly to the pinching in of a number of big wells because of insufficient storage and pipe line outlet. Last week Independent Oil & Gas Co. led the list of producers in Winkler County with around 22,000 bbls. of production. This week that company's production was off 9,000 bbls. in comparison with the previous week because two big wells were pinched in. The pinching in of production was general among a number of producers.

Gulf Production Co. brought in one of the biggest wells of the week Sunday when its No. 10 T. G. Hendricks-B, SW cor. NE of Section 45, Block 26, came in making an estimated flow of 10,440 bbls. daily from a total depth of 2,694 feet. The well started off making 435 bbls. per hour and was pinched to 100 bbls. an hour.

Yates Pool Extension Proved

Outpost wells in the Yates Pool definitely proved the area extended several days ago. Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co.'s No. 16 A. Yates, in Section 34½ came in as the first big well in the mile south extension of the Yates Pool. The well is flowing around 63 bbls. hourly. It is an east offset to the same company's No. 2 M. A. Smith which is a 150-bbl. well.

Mid-Kansas and Transcontinental company's No. 1 F. Yates, Section 53, Block 1, which makes a three-quarters-mile north extension of those companies' proven acreage, is proving a good well. It topped the pay at 1,152 feet and was shut down at 1,292 feet flowing 562 bbls. daily. This well is to be drilled deeper. The western extension of the pool, Phillips Petroleum Co.'s No. 1 M. A. Smith, in Section 39, Block 194, is to be completed in pay at 1,255-1,372 feet as a 200-bbl. well. No water has shown in this extension well up to the present but the well did not come up to its estimated production of 250 bbls.

In Howard County, Sun Oil Co. extended the Settles Pool more than a half mile to the west when its No. 1 Settles, in the SE cor. of Section 125, Block 29, W.&N.W. Survey, swabbed 430 bbls. in four hours from 2,530-40 feet. Magnolia Petroleum Co.'s No. 2 Dora Roberts, in the Roberts Pool of Howard County, was completed as a 3,000-bbl. well and shut in.

Line for Roberts Pool

It is reported that the Rio Grande Refining Co. is contemplating the construction of a 4-inch line from the Roberts Pool to Big Springs where a loading rack would be built in the event the line is built. Affiliated interests of the Rio Grande company have a deep producer in the Roberts Pool which is shut in with three other wells in that pool because of the inadequate pipe line outlet. The report, however, has not been verified. All of the wells producing from the deep lime were to be produced on a proration plan. Magnolia Pipe Line Co. has the only line into the pool and it is only a 4-inch carrier.

A record is believed to have been established by the Texon Oil & Land Co. in drilling the world's deepest cable tool well. That company's No. 1-B University in the heart of the Big Lake Field, Reagan County, is now shut down at 7,665 feet with 2,000 feet of oil in the

(Continued on Page 139)

WILDCAT OPERATIONS IN WEST TEXAS

Week ending March 3, 1928

Company, farm and location—	Remarks—
ANDREWS COUNTY	
Deep Rock Oil Co.'s No. 1 W. J. Harris, C SE Sec. 12, Blk. A-46, Public School Land, elev. 3,167 ft.	Hole full fresh water 1,050 ft.; top salt 1,690 ft.; shut down 2,770 ft. for casing.
B. B. McKennon's (was Neff et al's) No. 1 J. S. Means, C SE Sec. 12, Blk. A-35, Public School Land	Set 8-in. 1,530 ft.; top salt 1,530 ft.; shut down for casing 3,376 ft.
BORDEN COUNTY	
Dixon Creek Oil Co.'s No. 1 Clayton & Johnson	Set 15½-in. casing 375 ft.; drlg. by tools 540 ft.
Marland Oil Co.'s No. 1 G. E. McDavid, C SW Sec. 156, Blk. 25, H.&T.C. Sur., elev. 2,310 ft.	Top lime 2,410 ft.; set 8-in. 2,745 ft.; drlg. 2,810 ft.
Marland Oil Co.'s No. 1 Alexander Murphy, C SW Sec. 66, Blk. 25, H.&T.C. Sur. (3,250-ft. test)	Location.
BREWSTER COUNTY	
Cowden & Bowser's No. 1 Jackson & Harmon, C N half Sec. 1, Blk. 331	Spudding.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G.H.&S.A. Sur.	Shut down 910 ft.
Mid-Kansas O. & G. Co.'s No. 1 Turney, Sec. 77, Blk. 213, T.&St.L. Sur.	Drlg. 3,075 ft.
Reese & White's No. 1 Kimbale, C NE Sec. 204, Blk. 9, G.H.&S.A. Sur.	Drlg. 1,462 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,700 ft.
Wilcox & Anderson's No. 1 Gage, Sec. 8, Blk. 300, T.C. R.R. Sur.	Drlg. 1,910 ft.
COKE COUNTY	
W. H. Brown et al's No. 1 W. L. Foster, SE cor. Sec. 142, Blk. 2, H.&T.C. Sur., elev. 2,222 ft.	Run 6-in. casing 3,180 ft.; drlg. 3,416 ft.
Lipan Oil Co.'s No. 1 S. M. Conner, Sec. 71, Blk. 2, H.& T.C. Sur.	Show oil 1,224-34 ft.; shut down lime 3,317 ft.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Total depth 2,736 ft.; shut down.
CONCHO COUNTY	
Parks & Lawson's No. 1 Schultz	Show oil 925 ft.; shot with 40 and 30 qts.; no results; shut down 1,500 ft.
The Exploration Co.'s No. 1 Hartgrove, Blk. 240, J. Schouch Sur., elev. 1,718 ft.	Set 10-in. 760 ft.; shut down 940 ft.
Sartain Oil Co.'s No. 1 Evridge	Spudded and shut down.
CRANE COUNTY	
Crane Dev. Co.'s No. 1 J. R. Mosley, S cor. Sec. 18, Blk. 6, H. & T. C. Sur.	Top salt 819 ft.; drlg. 2,910 ft.

(Continued on Page 141)

Late News from the Field

OKLAHOMA

The Greater Seminole area produced 304,782 bbls. for the 24 hours ending Tuesday morning, March 6. The output by pools was:

	Bbls.
Little River	39,040
Bowlegs	86,589
Earlsboro	106,061
Seminole	55,146
Searight	17,946
Total	*304,782

*Barrels from 1,081 wells.

The output of the Little River Field has been increased by the open flow of the two wildcat wells which have formerly been pinched in; the Snowden & McSweeney's No. 1 Tiger, NW cor. NW, Section 13-7-6, and the Independent Oil & Gas Co. and Highway Oil & Refining Co.'s No. 1 Harris, SW cor. NW NW, Section 23-7-6. The former well flowed 3,657 bbls., and the latter 2,258 bbls. for the 24-hour period ending Tuesday morning. The Snowden & McSweeney well was not drilled deeper since the 3 feet were made on Sunday of this week, and the Independent well was deepened 3 feet to a total depth of 4,258 feet. The deeper drilling showed no increase in output for the Independent-Highway well.

In Little River, the Magnolia Petroleum Co. has a light well in No. 4 Pottey, NE cor. SE NE, Section 35-8-6, which is swabbing 112 bbls. from the Wilcox sand 4,289-99 feet. At Bowlegs, the Prairie Oil & Gas Co.'s No. 6 Temp'eton, NE SW SE, Section 12-8-6, is good for 60 bbls. daily on the swab from sand 4,355-63 feet. The Atlantic Oil Producing Co.'s No. 2 Grayson, NW cor. SW NW, Section 13-8-6, is dry in the lower Wilcox sand found 4,408-12 feet, and will be plugged. The Texas Company's No. 14 Reed, NE cor. NW NE, Section 14-8-6, has 500 feet of water in the hole from sand 4,410-38 feet; and looks like a dry hole.

In Osage County, the Prairie Oil & Gas Co. has a good well on the east side of the Burbank Field. It is No. 2, NW cor. SW NW, Section 21-27-6, and had 5,000,000 feet of gas, and is flowing 71 bbls. an hour from the regular Burbank sand 2,897-2,918 feet. This well is on the lease which the Prairie purchased at the most recent Osage sale. It is a quarter mile south of the well dril'ed by A. G. Oliphant and others in the NE cor. NE, Section 20-27-6, which was subsequently sold to the Prairie. The new well is located on the narrow strip of productive territory which runs parallel

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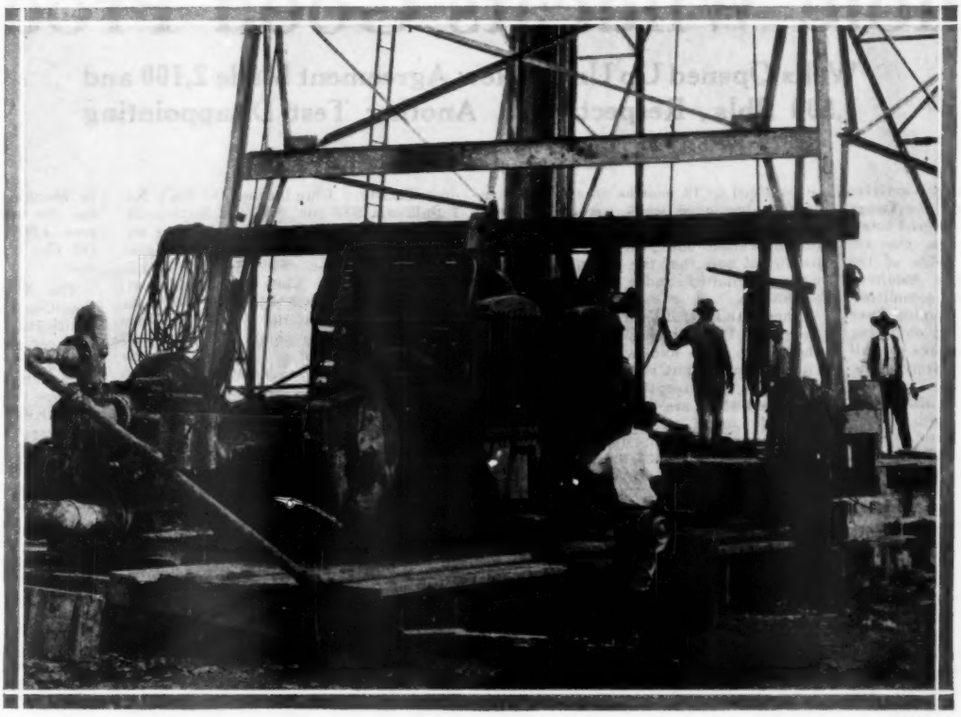
Typical Waukesha-Powered Rotary Rig in Texas



P-748-XL

Doubling Up

Two 125 H. P. Waukesha "Ricardo Head" Heavy-Duty Oil Field Power Units make an ideal combination for rotary rigs—one on the mud pump, the other on the rotary or both on the draw works. In this manner they are widely used along the Gulf Coast and in West Texas. Using little water and running on easily portable fuel—gasoline or "waste gas"—they are particularly adapted to both "wild cat" drilling or producing fields where water is scarce and fuel dear.

Waukesha Oil Field Power Units are built in sizes from 40 to 125 H. P. For stationary work where a complete weather-proofed unit is not required Oil Field Stationary Units with unusually large radiators are available in sizes from 70 to 125 H.P. Waukesha power is used for drilling with either rotary or cable tools; for pumping water, oil and mud and for driving "Gas Lift" compressors. If you are interested in the "Gas Lift" write for Bulletin 616 which gives the entire theory and practice of this kind of pumping.

P-810-L

OIL INDUSTRY EQUIPMENT DIVISION

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Seminole Wildcats Good Producers

Wells Opened Up Under New Agreement Made 2,100 and 3,500 Bbls., Respectively. Another Test Disappointing

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

Last week showed a general activity in the "South Country" and the Osage with a scattered interest through the remaining fields of the State. The Seminole operators' committee, and the umpire have succeeded in obtaining the signatures of all producers interested in the regions which are shut in and also in the territory south of Little River. These signatures have resulted in the unanimous adoption of the program previously mentioned in The Oil and Gas Journal, and call for the continuation of the shutdown in the Maud area until May 1, and for the drilling of only nine test wells in the territory south of Little River. Instead of 125 wells being started, the nine will comprise the total outside drilling until they reach the sand, after which some 20 secondary locations may be started.

The two wildcat wells south of Little River have been produced at a maximum in accordance with the agreement. The Independent Oil & Gas Co. and Highway Oil & Refining Co.'s No. 1 Harris in Section 23-7-6, is making 2,100 bbls. daily without deeper drilling, and the Snowden & McSweeney wildcat, No. 1 Tiger, in Section 13-7-6, is flowing 3,500 bbls. daily after being deepened 3 feet in the sand, making a total depth of 4,324½ feet. This well at first was thought to be disappointing when some water appeared, but the penetration exhausted the water, and it is believed that it was coming from the lime above the sand. The Independent-Highway well will probably be drilled deeper this week.

The next most important event in this locality was the failure of The Texas Company's No. 1 Reed, SW cor. SW, Section 12-8-5, a half-mile east and one location north of the Barnsdall Oil Co.'s No. 1 Fife, NE cor. NW, Section 14-8-5. The Barnsdall well has been shut in, and the failure of the Texas well has not enhanced the possibilities of this territory, although it will undoubtedly produce several small pools, rather limited in area. The Texas well found a small show of oil and 2,000 feet of water in the top of the Wilcox sand at 4,701 feet, some 500 feet lower structurally than the Barnsdall well. It is now drilling deeper, but will probably be abandoned.

The eccentric performance of the Prairie Oil & Gas Co.'s No. 5 Davis, in Section 13-9-5, caused the output of the Greater Seminole area to fluctuate last week, making as low as 302,400 and recovering to 306,900 bbls. The Prairie well has been off production several times, and is now flowing 2,000 bbls. on air. The offsets have been light wells.

Wells Short Lived

A much better and clearer picture of the efficacy of the air-gas lift in the Seminole area is now possible, and it indicates that the lift will do what many have constantly believed: it will produce the oil cheaply and rapidly; but as to causing recovery, there is much doubt. There have been several of the older wells in the Greater Seminole area plugged and abandoned during the past two weeks, and at this time there are 1,708 producing wells in the region. Approximately 12 wells have been abandoned recently, and almost all of them were lighter wells which had made their oil by the lift method. The lift caused a rapid depletion of the sand in these wells; and after 18 months of producing life, they have been pulled. This should not be taken as complete evidence that the life of all wells in the region will be confined to 18 months on air, as some of the abandoned wells were located in the Bowlegs Pool, which was only under full operation one year ago; but it is worthy of note that the life of the poorer wells is limited under this manner of production.

There are several leases in the old Seminole City Pool which have never had an abandoned well, and which are making an excellent output right now; but these leases are the exception rather than the rule, and they are located on the most desirable parts of the Seminole City structure, or group of structures.

There are 20,289,435 bbls. of oil stored in the Seminole Field at this time by producing companies, exclusive of the working stocks of the pipe line companies. The storage as of March 1 is given below:

Company—	Stock (bbls.)
Barnsdall	1,930,284
Carter	1,407,449
Continental	660,410
Mid-Continent Petroleum	187,400
J. E. Crosbie	311,550
Empire	148,049
Gypsy	319,308
Independent	552,712
Indian Territory Ill. Oil	4,281,993
Magnolia	2,076,354
Phillips Petroleum	207,351
Pure Oil	733,991
Prairie	1,206,083
Prairie-Indian Territory	2,802,971
Roxana	3,790
Shaffer Oil	154,745
Twin State	98,762
T. B. Slick	1,323,081
Superior	101,825
Tidal Oil	431,008
Turman Oil	171,227
Total	20,289,435

Pearson Switch Area

In the Pearson Switch area of Pottawatomie County, the McCulloch Oil Co. of Okmulgee and the Mid-Continent Petroleum Co. have a good well in the Simpson sand in No. 1 Smith, NW cor. SE Section 25-7-4, which is making 900 bbls. now, and had an initial output of 1,050 bbls. from sand at 4,139-65 feet. This well was good for 200 bbls. in the Hunton lime, and will probably be held in the Simpson.

Around the Viola Lime Pool, which was brought into prominence by the Indian Territory Illuminating Oil Co.'s No. 1 Sullivan, SW cor. NW SE Section 25-7-3, the Magnolia Petroleum Co. has another Viola well in No. 1 State Land No. 77, NE cor. SW Section 36-7-3. This well had the Viola at 4,285-95 feet, and is flowing 1,100 bbls. The Magnolia Petroleum Co. owns the oil and gas lease upon the entire section. The new well is three-quarters of a mile south of the Sullivan well, and with nothing between these two locations to condemn the oil possibilities, there will very likely be a slow drilling activity, which will be cautious on account of the eccentric nature of the Viola lime.

Next in importance to the Greater Seminole area is the Lovell Field of Logan County with its mile-and-a-half drilling. This territory has been the scene of a slow drilling campaign, which has been subject to numerous delays on account of the hazard of drilling. The unusual depth of the wells, and the extraordinary strings of large pipe which are handled, have resulted in many bad fishing jobs being experienced. The Lovell Pool is now producing 5,036 bbls. daily, all by the Roxana Petroleum Co., which opened the pool. There are several other companies operating in the pool, principally the Sinclair Oil & Gas Co. and the Twin State Oil Co., but the production thus far has all been owned by the Roxana. The output on Monday, March 5, was:

	Bbls.
Roxana Petroleum Corp.'s Freelove	2,214
McCulley	1,977
Ross	593
Williams	252
Total	5,036

Interesting Deal

An unusual transaction was recorded during the week when the Twin State Oil Co. sold to J. E. Crosbie of Tulsa, a one-half interest in its Shaffer lease comprising the NW of Section 20-19-4w, which is a direct south offset to the Roxana Petroleum Corp.'s Freelove lease. Under the terms of the sale, Mr. Crosbie is to carry the Twin State Oil Co. for a full one-half royalty in the lease, and is to reimburse it for the money expended for the one well on the lease which is now 4,900 feet deep. The Twin State Oil Co. is to be under no development cost.

The Allen Field in Pontotoc-Seminole Counties had a surprise when the Mid-Continent Petroleum Corp.'s No. 2 Fleet, NW cor. SE Section 7-5-8, made 25 bbls. hourly from sand touched at 2,572 feet. This well is between two dry holes which are one location to the north, one being a quarter mile east and one a quarter mile west. Both wells are deeper than the Fleet well. This well extends the pool one-half mile to the northwest.

In Pontotoc County, east of Ada, the performance of two wildcat wells have caused a revival of interest in the shallow sand possibilities of the region. This territory has long been regarded as unfavorable for Wilcox sand production owing to the adjacent Arbuckle Mountain system. The two wells have indicated that shallow oil may be found; they are: J. E. Crosbie and others' No. 1 Nowabbi, SE cor. NE SW Section 8-4-7, which appears good for 60 bbls. daily from sand at 1,063-72 feet; and the Bottcher Oil Co.'s No. 1 Johnson, SW cor. NW Section 24-4-7, which has about 800 feet of oil in the hole from sand at 1,790-92 feet, and which made three small flows.

In the Osage County fields, the two wells drilled on gas rights have continued to interest the fraternity. They are the Kay County Gas Co.'s No. 2 in Section 22-24-7, which flowed 73 bbls hourly according to last reports, and No. 1 in Section 9-23-7, which is shut down for tankage, and is believed to be as good as the other well. The production of these wells is responsible for the coming sale of Osage leases.

Greater Seminole Production

The production of the Greater Seminole area by companies and leases for Thursday, March 1, is given below:

Little River

Company and Farm—	Wells	Prod.
Amerada:		
Nitey	3	2,550
Amerada et al:		
Fore	2	1,644
Blackwell:		
Nitey	6	2,646
Barnsdall:		
Hotulke	1	50
Carter:		
Fish		1,715
Jackson	1	440
Continental:		
Cosar	3	1,150
Gypsy:		
Brown	1	50
Campbell	2	150
Nungee	1	65
Pottey	3	685
Independent:		
Harris	1	575
Independent et al:		
Davis	2	1,770
Indian Territory:		
Campbell	1	120
Dungan	3	2,580
House, M. A. "A"	1	247
House, W. E. "A"	1	54
House, W. E. "B"	3	1,867
Jackson	3	2,154
Hull	1	22
McCulla	3	990
Nitey	7	1,852
Phoebe, "A"	3	710
Phoebe, "B"	4	977
Reed	1	100
Soketheche	4	907
Magnolia:		
Cruse	1	670
Dixon	1	200
Pottey	2	600
Mid-Continent:		
Smith	1	30
Wadsworth	7	1,900
Pine & Phillips:		
Pottey	2	220
Prairie:		
Dungan	2	0
House	4	2,150
Roxana:		
Smith	1	30
Shaffer:		
Narcome	1	100
Sinclair:		
Cosar	2	1,800
Snowden et al:		
Tiger	1	400
Superior:		
Wadsworth	1	30
Texas:		
Coker	3	630

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

GRANT COUNTY

Otstot Development Co.'s No. 1 Snyder, NE cor. NE Sec. 6-28-3w ..... Shut down 4,518 ft.
J. V. Bailey and others' No. 1 Maddox, C SE Sec. 13-27-5w ..... Shut down 4,842 ft.
Thraves and others' No. 1 C. D. Fuss, SW cor. NW NW Sec. 20-27-4w ..... Shut down 1,230 ft.
Burns & Beasley's No. 1 Bolsterton, SW cor. NW SW Sec. 24-27-3w ..... Rig.
Brasil & Moses' No. 1 Goutier, SW cor. NW Sec. 34-26-4w ..... Shut down for pipe 650 ft.
Lambert and others' No. 1 Tabor, SE cor. NE SE Sec. 23-26-3w ..... Spudded and shut down.
Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w ..... Fishing 5,640 ft.

HARPER COUNTY

Kopisch Oil Co.'s No. 1 Johnson, NE cor. SE Sec. 24-27-21w ..... Rigged up and shut down.
Hoffer Oil's No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w.. Shut down 4,130 ft.

WOODS COUNTY

Sooner State Oil Co.'s No. 1 Marcum, C SW Sec. 20-27-15w ..... Spudded and shut down.
Victor Oil Co.'s No. 1 Buskirk, SW cor. SE Sec. 10-25-15w ..... Hole full wtr., 775-800 ft; S.D., 900 ft.
McCray Oil & Gas Co.'s No. 1 Whitney, NE cor. NW SE Sec. 18-24-14w ..... Shut down 1,880 ft.

KAY COUNTY

Boucher and others' No. 1 Cooper, SE cor. SE Sec. 23-27-2w ..... U. R. casing 1,435 ft.
Ponca Lee Oil's No. 1 McNeil, NW cor. NE Sec. 32-26-2e.. Shut down 2,795 ft.
Tonkawa Development Co.'s No. 1 McDaniels, SE cor. SE Sec. 15-25-1w ..... 500,000 ft. gas.; 3,980-88 ft.; shut down 4,475 ft.
Miller & Geyer's No. 1 Albright, NW cor. SE Sec. 10-25-1 ..... Sand 4,118-45 ft., dry and abandoned.
Corley and others' No. 1 Williams, SE cor. NE SW Sec. 7-21-1w ..... Shut down for casing 1,930 ft.

WOODWARD COUNTY

Otstot Development Co.'s No. 1 Simmons, SE cor. SE Sec. 32-24-17w ..... Shut down for pipe 1,430 ft.
Wight & Wahl's No. 1 Williams, C NW Sec. 16-23-20w... Rig.
Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w ..... Shut down 1,092 ft.
Sharon Oil Co.'s No. 1 Elmore, SW cor. SW Sec. 25-21-21w ..... Shut down 2,772 ft.
Burgoyne Brothers' No. 1 Barnes, SW cor. SE NE

(Continued on Page 77)

Premium fuel oil as well as premium gasoline is now a product of the Dubbs Cracking Process with Flashing System

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Tidal:		
House	3	1,290
Johnson	1	70
Total	99	33,946

Maud

Company and Farm—	Wells	Prod.
Barnsdall:		
Fife	1	350
Indian Territory:		
State	1	....
Total	2	350

Bowlegs

Company and Farm—	Wells	Prod.
Amerada:		
Rasco	8	2,345
Atlantic:		
Baker	4	610
Fleet	4	499
Grayson	3	934
Jones, A.	3	109
Jones, C.	2	244
Barnsdall:		
McNac	1	30
Murrow	4	988
Carter:		
Bowlegs	4	1,525
Burden	3	300
Harjoche	6	765
Hilly	3	950
Jones	4	1,715
McGeisey	1	20
Melisse	1	300
Walker	4	785
Wise	12	3,660
Empire:		
Lacy	6	638
Wise	2	580
Gypsy:		
Bowlegs	1	260
Bradley	1	5
Cumsey	4	1,605
Dosar	1	100
Grayson	4	1,000
Harjoche	2	3,772
Henderson	1	52
Jones	1	340
Walker	8	2,042
Wise	3	165
Indian Territory:		
Barnett "A"	2	226
Barnett "B"	1	215
Billington	5	982
Bowlegs	11	1,689
Davis	4	1,377
Fay	9	2,475
Goforth	12	1,563
Livingston	11	4,030
Lizzie	2	511
Walker	8	975
Wilmont	4	838
Work	2	144
Youngblood	2	226
Magnolia:		
Davis, B. F.	3	742
Davis, M.	1	327
Hammond	2	296
Rhoades	3	4,770
Van Buskirk	1	307
McColloch:		
Bowlegs	2	217
Mid-Continent:		
Baker	4	1,652
Bowlegs	1	40
Smithe	6	820
Minnehoma:		
Bowlegs	4	315
Prairie:		
Gahagan	4	380
Harber	8	3,325
Jones	4	565
Templeton	4	2,665
Whitney	4	505
Pure:		
Reed	15	3,316
Strothers "D"	4	655
Strothers "F"	4	914
Roxana & Houston:		
Taylor	5	1,068
Shaffer:		
Lacy	3	475
Sincla'r:		
Bowlegs	1	80
Cumsey	4	5,316
Ellen	6	1,577
Harjo	3	740
Jones	6	5,290
Taylor, M.	4	2,948
Taylor, W.	1	1,792
Walker	4	815
Texas:		
Reed	11	3,145
Tidal:		
Grayson	4	960
Harjoche	6	2,230
Twin States:		
Jones	3	10
Total Bowlegs	310	89,752

Earlsboro

Company and Farm—	Wells	Prod.
Atlantic-Sinclair:		
Foreman	1	215
Amerada:		
Anderson	2	1,375
Cowden	8	1,745
Rodgers	2	1,430
Barnsdall:		
Brown	4	1,424
Bruner, F.	2	870
Bruner, N.	4	1,478
Cudjo, C.	1	27
Davis, D.	4	1,699
Davis, J.	4	761
Davis, M.	3	144
Gibson	8	2,214
Hearn	1	6
Ingram	7	2,649
Pack	4	202
Peter	4	334
Sango	3	7,472
Sebolka	1	775
Sullivan, H.	2	....
Sullivan, Harjo	2	62
Wasutke	4	1,595
Carter:		
Davis	2	505
Payne	3	140
Sango	4	2,945
Continental:		
Kays	2	30
Spencer	4	1,250
Crosbie:		
Bryant	2	17
Empire:		
Barker	1	1,570
Edmundson	3	1,393
Gypsy:		
Boro	1	6
Bruner	4	2,547
Carter	10	3,660
Earl	1	17
Hunick	1	2,092
Noble	4	3,377
Peter	3	795
Sango	5	6,337
State	4	1,142
Independent:		
Bruner	4	165
Sullivan	3	197
Knapp	4	2,054
Gaines	4	1,565
O'Dell	1	10
Inter-Ocean:		
Payne	1	....
Magnolia:		
Bryant	6	2,513
Cowden	4	74
Dixon	1	....
Edmundson	2	42
Holmsley	8	1,976
Ingram	1	30
Lena	3	80

LOST SPRINGS DISTRICT IS CENTER OF GREATEST INTEREST IN KANSAS

By J. L. Dwyer
Staff Correspondent, Kansas Fields.

The Lost Springs district of Marion County is the most active pool in Kansas, and after the completion of the well of Lariaux and others on the south edge of town, there has been added interest in the possibility of a southeast play. On the west edge of the townsite, the Phillips Petroleum Co. has a show of oil in No. 1 Franks, which is an offset to the dry hole completed by Harwood & Winters, who pioneered this part of the country. The Lost Springs district is now making 1,800 bbls. of oil daily from 12 wells.

In the Churchill Pool of Sumner County, the Roxana Petroleum Corp.'s No. 1 Martin, NW cor. SW, Section 19 31-3, was plugged back to 1,988 feet and shot with 20 quarts. There was no increase in oil and the well made about 20 bbls. The plug is now being drilled out, and the well will be deepened.

In the southwest part of Lost Springs Pool, the Independent Oil & Gas Co. is getting a light well in No. 1 Bevans, NE cor. SE SE, Section 21-17-4, which found chat 2,389-2,446 feet, and is estimated at 50 bbls. per day.

Butler County

Empire Oil & Refining Co. made location for No. 1 Marshall, NW cor. SW NW, Section 22-27-6. Pappas and others' No. 1 Hulbert, NE cor. SE SW, Section 24-25-4, is dry and abandoned at 772 feet.

Cowley County

Smith & Ash's No. 1 Bush, NE cor. NW SE, Section 3-30-4, has been abandoned at 2,986 feet. Skelly Oil Co.'s No. 1 Saunders, NE cor. NW NE, Section 31-31-6, had sand at 2,263-2,304 feet and made 100 bbls. after a shot of 60 quarts.

Dickinson County

Harwood & Winters' No. 1 Uteck, SW cor. SE NW, Section 35-16-4, had a show of oil in sand at 2,275-2,370 feet but has been abandoned at 2,601 feet.

Elk County

Roth & Faurot's rig is under construction for No. 12 Hanna, NW cor. NE NW SW, Section 13-29-8. Jacon Oil Co. is building the rig for No. 2 Mullendore, SW cor. NW SW, Section 3-30-9. Phoenix Oil Co.'s No. 4 Mills, NE cor. NW NW NW, Section 23-30-10, is drilling at 200 feet. Sherman and others made location for No. 1 Baker, SW cor. NW NW NW, Section 10-31-10.

Denton and others' No. 16 Denton, SE cor. NE, Section 4-30-9, has been completed for 75 bbls. in sand at 2,300-20 feet. Union Gas Corp.'s No. 23 Webb, C NE NW, Section 14-31-10, is making 125,000 feet of gas from sand at 1,991-94 feet.

Greenwood County

Simmons & Rhodes moved the rig to the location for No. 2 Schwab, NW cor. SE SE, Section 30-22-13. Skelly Oil Co. has the rig up for No. 2 Schwab, SE cor. SW NE, Section 30-22-13. A machine has been moved out for No. 1 Leu, NW cor. SE NE, Section 32-22-13. Superior Oil Corp.'s No. 1 Leau, SE cor. NW NE, Section 33-22-13, is drilling at 1,700 feet.

Empire Oil & Refining Co.'s No. 5

(Continued on Page 127)

KANSAS WILDCATS

BARBER COUNTY

Barbara Oil Co.'s No. 1 Blunk, C NE NW Sec. 20-34-13w . . Drilling 1,700 ft.
G. W. Haxum's No. 1 Grant, SW cor. SE SW, Sec. 18-31-8 . . Spudded.
Otstot et als' No. 1 Barlow, SE cor. SE, Sec. 22-33-3w . . Shut down 1,860 ft.
Rolland and others' No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w . . Shut down 3,196 ft.
J. K. D. Shaffer's No. 1 Carter, C SE SE Sec. 2-33-13w . . Fishing 3,980 ft.
J. K. D. Shaffer's No. 1 Boggs, SW cor. NE SW Sec. 19-33-12w . . Shut down 5,035 ft.
Skelly Oil Co. and others' No. 1 Winter, CE half Sec. 17-31-12w . . Fishing 3,445 ft.

BARTON COUNTY

Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w . . Shut down 3,948 ft.
Huffine and others' No. 1 Smith, NE cor. SE NW Sec. 17-19-11w . . Shut down 5,180 ft.

BUTLER COUNTY

Cress & Franks' No. 1 Bryson, NE cor. NE Sec. 26-27-5 . . Drilling 808 ft.
Empire Gas & Fuel Co.'s No. 1 Semisch, NW cor. SE NW Sec. 4-28-7 . . Drilling 2,250 ft.
La Robb and others' No. 1 Bronsenger, NE cor. SW Sec. 24-27-3 . . Rig.
Joe Liggett's No. 1 Travender, NW cor. SE Sec. 24-28-4 . . Drilling 2,530 ft.
White Eagle Oil & Refining Co.'s No. 1 Dixon, NE cor. SE SW Sec. 1-27-6 . . Hole full of water 3,099-3,105 ft.; shut down.
H. F. Wilcox Oil & Gas Co.'s No. 1 Littell, NE cor. SE NW Sec. 21-29-4 . . Collapsed casing 1,458 ft.; shut down.

CHASE COUNTY

Griener & Fowler's No. 1 Carson, NE cor. NE Sec. 9-21-7 . . Drilling 1,925 ft.

CLARK COUNTY

Skelly Oil Co. & Merriam's No. 1 Winter, C E Half Sec. 17-31-12w . . Drilling 3,465 ft.
Walter & Warner's No. 1 Mitchell, SW cor. NE Sec. 16-31-23w . . Shut down 600 ft.

CLOUD COUNTY

Concordia Producing & Refining Co.'s No. 1 Murdock, SE cor. SE Sec. 6-6-4w . . Shut down 3,590 ft.

COWLEY COUNTY

Allison & Fitzwilliams' No. 1 Shapland, NE cor. NW SE Sec. 20-30-6 . . Shut down 790 ft.
Barnsdall Oil Co. No. 1 Russell, NE cor NW SE Sec 15-33-4 . . Rig.
Derby Oil Co.'s No. 1 Seaman, NE cor. SE NE Sec. 32-30-3 . . Drilling 2,712 ft.
John Herron and others' No. 1 Marshall, SW cor. NE Sec. 36-30-6 . . Drilling 1,360 ft.
R. H. Hood's No. 1 Butler, C SE SE Sec. 15-26-11 . . Spudded.
Meridian Gas Co.'s No. 1 Roselle, SW cor. SE Sec. 8-35-1 . . Drilling 1,980 ft.
Otstot et al's No. 1 Volker, NW cor. NE, Sec. 9-35-1 . . Rig.
Harris & Hahn's No. 1 Gamble, C NW NW Sec. 17-35-3 . . Shut down 1,400 ft.
E. B. Shawver and others' No. 1 Disser, NW cor. NW Sec. 10-34-3 . . Fishing 1,426 ft.

(Continued on Page 121)

Seay	9	3,934
Simpson	3	253
Sparks	7	1,958
Sullivan	3	129
Mid-Continent:		
McCumber	7	375
Mid-Kansas:		
Anderson	4	190
Phillips:		
Dunnaway	1	22
Graham	4	212
Prairie:		
Baker	1	50
Davis	5	4,080
Graham, C.	2	25
Graham, O.	4	2,385
Stidham	13	4,250
Roxana:		
Baylis	1	13
Spencer	2	1,380
Shaffer:		
Clark	6	1,836
Sincla'r:		
Foreman	1	15
Hollins	3	180
Sango	2	4,135
Skelly:		
Spencer	1	708
Texas:		
Anderson	6	920
Brown	8	2,500
Rodgers	4	4,625
Wilmont	7	3,348
Tidal:		
Watkins	8	3,110
Twin State:		
Barker	4	145
Hearn	4	2,005
Total Earlsboro	286	105,933

Seminole

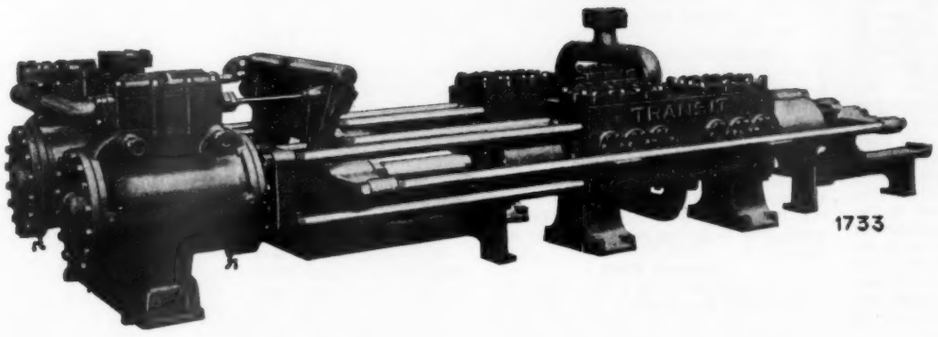
Company and Farm—	Wells	Prod.
Carter:		
Carter, B.	2	200
Carter, J.	3	35
Carter, F.	3	115
Creamer	2	32
Cudjo, R.	4	210
Cudjo, W.	2	30
Gilliland	1	300
Grisso, M.	1	260
Grisso, W.	5	550
Knapp	3	49
Killing, M.	12	7,390
Killing, G.	4	380
Lukes	6	1,500
Ponder	2	65
Simpson	3	70
Strother	4	410
Vierson	3	365
Amerada:		
Fixico	4	591
Killing	4	660
Rentie	3	669
Atlantic:		
Cudjo, N.	3	453
Barnsdall:		
Carter	8	1,884
Henry	2	547
Jones	4	1,864
Empire:		
Gross	3	90
Wilson	2	336
Gypsy:		
Butler	4	1,055
Carter	8	407
Cudjo	5	522
Fixico	7	150
Harjo	3	1,005
Wolf	6	427
Independent:		
Fixico, P.	3	200
Independent & McColloch:		
Butler	3	980
Harjo	3	125
Independent & Garland:		
Fixico, T.	8	622
Independent & Interocean:		
Jones	4	400
Indian Territory:		
Allen	2	392
Bowlegs	12	2,900
Gooden	4	303
Harjo	3	94
James	2	295
Reed	2	28
Kingwood:		
Johnson	3	1,272
Magnolia:		
Born	1	33
Franks	4	824
Mid-Continent:		
Rentie	9	1,125
Tayeche	7	390
Mid-Kansas:		
Wilkins	2	4
Phillips:		
Strothers	2	150
Prairie:		
Gross	5	130
Mason	1	90
Spencer	1	33
Strother	8	1,650
Pure:		
Strother "A"	17	5,450
Strother "B"	5	1,960
Strother "C"	1	255
Roxana:		
Harber	2	297
Lashley	2	38
Sincla'r:		
Carter	2	28
Cudjo, A.	6	760
Cudjo, B.	4	1,170
Dicey	2	1,440
Fixico	4	1,015
Slick:		
Cudjo	3	725
Franks	7	1,623
Giblet, Sam	3	2,074
Tiger	1	58
Superior:		
Cudjo	4	850
Texas:		
Mayhue	1	300
Strothers	1	150
Tidal:		
Carter	4	745
Fixico	7	653
Harjo, D.	3	745
Harjo, T.	6	100
Mahardy	2	33
Turman:		
Cudjo	4	960
Grisso	1	315
Jones	4	1,161
Total	311	57,135

Searight

Carter:		
Davis	7	725
Frazier	6	2,940
Johnson	1	5
Kiker	1	30
Mandler	2	35
Scott	1	70
Amerada:		
Johnson	1	70
Strother	2	1,240
Empire:		
Harjo		....
Gypsy:		
Cudjo	2	700
Mid-Continent:		
Grayson	6	65
Soloche	4	1,890
Pine:		
Lulla	1	90

(Continued on Page 81)

The Wise Cracker



There are two very different meanings for the heading. Of course, we mean an intelligent cracking process operator.

The wise cracker realizes the importance of installing the best hot oil pumps his money can buy. If there is any place around a refinery where high quality is essential, it surely is where this dangerously hot oil is handled. There should be no compromise here.

TRANSIT hot oil pumps control the speed and pressure of the hot oil within very close limits. Speed and pressure thus controlled, in turn, exert a strong influence on maintaining constant temperature of the hot oil.

Thus by insuring unvarying speed; steady, even pressure, and constant temperature, TRANSIT pumps exercise the closest control over these characteristics of the hot oil. This tends towards a certain definite gasoline yield, both in quantity and quality. And they do all these things with absolute safety, both to your men, and your big refinery investment.

Literature on TRANSIT Hot Oil Pumps will gladly be sent on request.

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Maintain Southwest Texas Production

Despite Little New Drilling in Proven Areas, Output Shows But Little Decline. Gas Areas Most Active

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Mar. 5.—Pipe line runs from four pools of Southwest Texas, including Luling and Mirando which are the largest, show the daily average production for February to be slightly less than for January. There has been very little drilling in the proven fields of Southwest Texas for more than a year and the manner in which the pools are holding up is attesting to their probable long life.

Completion of two good wells in the Dale Field nearly doubled the production in that field. Luling and Dale each increased the number of producing wells by two. The other pools made no change. Production of the four pools which are from pipe line runs and the number of wells producing in each follows:

Pools	February		January	
	No. Wells	Daily Average	No. Wells	Daily Aver.
Mirando	670	6,393	670	6,965
Luling	556	13,945	554	14,160
Lytton Springs	304	1,530	304	1,545
Dale	22	845	20	445

There is nothing on the horizon at this time to indicate that drilling in proven territory will be any more vigorous during 1928 than during 1927. Even if the price of oil should advance there is not much room in proven fields in this territory for any very great extension of daily average production. However, there are a few new spots that are showing oil that could before the year is over develop into fields of considerable importance. Among these are the Driscoll's discovery in Duval County, the Cole Petroleum Co.'s discovery in Survey 412 in Webb County, and the Albercas discovery in Blocks 64 and 65 of the Puig Brothers ranch in Webb County where a showing of oil was found some months ago and where a gas well has started making 5 to 10 bbls. of oil a day.

Drilling for Gas

A considerable part of the regular drilling at this time as it has been more than a year is for gas. Magnolia Petroleum Co. last week made five new locations in the south end of the Cole gas field in Duval County. Some of the wells in that territory after producing gas for a year are starting to make some oil and possibly Magnolia Petroleum Co. hopes to get oil but it is still gas territory. Lightfoot's location in Block 13, of Survey 287, in Jimm Hogg County, is an attempt to pick up production 1½ miles east of the Randado Field.

In the Kingsville Field in Kleberg County, interest is centering in the test of the Humble Oil & Refining Co.'s No. 5 Kleberg in the SW cor., Block 8, Section 40, which has found a sand at 2,840-53 feet. Recalling recent history, the Humble Oil & Refining Co.'s No. 2 Flato at 2,928 feet after pumping 15 bbls. a day for two years sanded up and when the liner was pulled leaving 250 feet of open hole it began flowing, starting off with about 1,200 bbls. of oil and the same amount of water. When it was drilled it found sands at about 2,700 feet and again at around the depth of the sand in No. 5 Kleberg. It is assumed that the bigger production that came from No. 2 Flato when the liner was pulled to clean out the well came from some other sand than that at 2,928 feet. No. 5 Kleberg has set casing about 2,830 feet and should be ready to test early the coming week.

Cole Gas Field—Duval

Schott & Taffel's No. 1 A. M. Bruni, Survey 585, at 3,000 feet to NW cor. and 150 feet to west line, is moving on. Houston Oil Co.'s (Humble) No. 2 Juan V. Cuellar, Share 1, Cuellar grant, at 474 feet to southwest lines and 2,258 feet to northwest lines, has been spudded in. Houston Oil Co.'s (Sun) No. 4-B Benavides, Survey 12, Block 13, located 660 feet to north and south lines, is drilling at 400 feet

Humble-Reiter-Foster Field

Humble Oil & Refining Co.'s No. 7 Kohler, Survey 165, located 200 feet to north and west lines, is setting casing at 2,685 feet to test sand at 2,793-2,807 feet.

Piedras Pintas Dome

Humble Oil & Refining Co.'s No. 7 Walsh, Survey 185, located 2,050 feet to east line and 1,750 feet to north line, at 4,505 feet, is fishing for bailer and will deepen.

Driscoll Field

Robert Driscoll's No. 9 fee, Survey 23, located 1,875 feet to north line and 2,850 feet to south line, at 3,005 feet, tested on drill stem and came in estimated at 50,000,000 feet. It started making sand and valve on the tester was closed and when drill stem was pulled out it contained 250 feet of oil. The casing has been set at 2,989 feet with sand at 2,989-3,005 feet and 4½-inch casing was used.

Randado Field—Jim Hogg

Johnson and others' No. 24 Palacious, Survey 291, Block 14, is location 150 feet to east line and 726 feet to north line. Magnolia Petroleum Co.'s No. 35 Merchants State Bank, Survey 415, located 1,525 feet to west line and 2,275 feet to north line, at 1,241-42 feet, has a sand and set casing.

Henne, Winch & Fariss Field

Edward St. Albans' No. 9 Lopez, Share 1, Block 6, located 291 feet to east line and 180 feet to south line, is standing at 2,144 feet.

Reiser Field—Webb

W. O. Wheatley's No. 3 Wheatley, Survey 1,618, Block 12, located 850 feet to south line and 450 feet to west line, at 334-73 feet had small oil showing.

Schott Field

Magnolia Petroleum Co.'s (Carnahan) No. 1 Garcia, Survey 53, located 200 feet to south line and 500 feet to east line, is moving on to deepen from 1,580 feet.

Leaseholders Pool

J. H. Winch's No. 1 A. E. Gates, Survey 70, located 1,470 feet to south line and 1,170 feet to west line, is drilling at 2,358 feet.

Aviator or Bruni Tracts

Livingston and others' No. 1 Puig, Block 5, Edgington Subdivision, 105 feet to north and west lines, is standing at 1,790 feet.

Carolina-Texas Field

Houston Oil Co.'s No. 3 S. Benavides, Survey 683, located 350 feet to north line and 1,470 feet to east line, is rigged up at 3,014 feet to deepen and is waiting on orders.

Cole Field No. 2

Cole Petroleum Co.'s No. 52 Benavides, Survey 412, Block 5, located 123 feet to north line and 482 feet to west line, at 2,324-31 feet on drill stem test showed gas and after valve was closed had several feet of oil in the bottom and is setting casing at 2,324 feet to complete; No. 53 Benavides, Survey 412, Block 3, located 150 feet to south and east lines, is drilling at 2,300 feet.

Luling Field—Caldwell

Pat M. Armstrong's No. 1 Hardeman, Miles G. Dykes Survey, 150 feet to northwest and southwest lines of the farm, is through chalk at 1,950 feet. Magnolia Petroleum Co.'s No. 8 F. M. Mercer is drilling at 1,914 feet. North & South's No. 1 Kelly is drilling at 7,570 feet in schist with casing set at 5,200 feet; No. 2 Tiller is drilling at 7,077 feet in schist.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 3-B Dennett, Lot 19, Section 38, at 150 feet to CWL, at 2,253-65 feet cored oil sand and has set casing at 2,253 feet to test; No. 5 Kleberg, Section 40, Block 8, at 150 feet to south and west lines, at 2,830-53 feet cored oil sand and set casing to test (this well is northeast offset of No. 2 Flato); No. 6 Kleberg, Section 40, Lot 1, at 450 feet to north line and 150 feet to east line, at 2,400 feet, approximate depth, has set casing. Houston Oil Co.'s No. 2-A Kissman, Section 41, Block 10, has rigged up.

Adams Gas Field—Medina

Lange & Jarmon's No. 1 Adams, Survey 71, located 500 to north and west lines, which has been standing since November, is preparing to resume drilling at 60 feet.

Saxet Field—Nueces

Alamo Drilling & Leasing Co.'s No. 1 Gallagher, Survey 158, located 1,215 feet to north line and 650 feet to east line, is shut down at 150 feet. Saxet Oil Co.'s No. 3 Weil, located 250 feet south of S.A.U.G. tracks and 250 feet west of No. 1 Reed & LaPrelle is rigging up.

Refugio Field—Refugio

Houston Oil Co.'s No. 1 Rooke is drilling at 3,000 feet; No. 6 Rooke is drilling at 3,000 feet; No. 11 W. J. Heard is setting casing at 3,290 feet. Houston Gulf Gas Co.'s No. 2 Shelly is at 3,307 feet waiting on casing; No. 5 W. Heard is drilling at 3,000 feet; No. 2 Ryals at 3,300 feet, approximate depth, is drilling in; No. 1 Vance at 3,600 feet is standing, having missed the new 3,300-foot sand. Saxet Oil Co.'s No. 6-A Heard (changed from No. 1 Wilson Heard), is moving in the machinery. George Williams, trustee's, No. 1 Terrell, Martin Powers Survey, 6 miles southwest of Refugio, is drilling at 1,925 feet.

White Point Field—San Patricio

Alamo Drilling & Leasing Co.'s No. 1 Hunter has spudded in and set casing at 350 feet. Houston Oil Co.'s No. 3 Humble is rigged up; No. 4 Humble is drilling at 2,306 feet; No. 5 Humble fee is location; No. 2 Ragsdale, deep test at 4,391 feet, is shut down for repairs. Saxet Oil Co.'s No. 1 Dennett is building derrick; No. 1 White Point Development Co. is drilling at 1,950 feet with considerable gas at 1,900 feet; No. 1 Hunter is erecting derrick.

COMPLETIONS

Caldwell County

The Texas Company's No. 1 Jeff Moore, James Gilbert Survey in the Dale Field, at 2,153 feet total depth, made initial production of 150 bbls.

Dimmitt County

Humble Oil & Refining Co.'s No. 1 City National Bank, Survey 654, at 5,004 feet has been plugged and abandoned. Well when shot at 1,455-85 feet showed from 3,000,000 to 7,000,000 feet of gas and derrick will be skidded over for No. 2 well to drill to the 1,455-foot sand.

Duval County

Humble Oil & Refining Co.'s No. 7 Walsh, Survey 185, in the Piedras Pintas salt dome, has been abandoned dry at 4,505 feet.

Hidalgo County

Queen City Oil & Gas Co.'s No. 1 Adams, Lot 1, Block 82, 3 miles north of Mercedes, has been abandoned at 3,-

(Continued on Page 114)

WATER IN DUVAL COUNTY TEST AFTER MAKING OIL 30 MINUTES

By B. D. Stevenson

SAN ANTONIO, Tex., Mar. 5.—Robert Driscoll's No. 9 fee in Duval County, tested last week, was both a success and a failure. Some sands previously tested as salt water were not cased off when the new sand was tested at 2,983-89 feet and the well first came in for about 70,000,000 feet of gas, then began to make oil and after 30 minutes began to make salt water and was promptly shut in. Now the question is where the salt water is coming from. Casing was set at 2,961 feet, taking in 7 feet of a sand at 2,957-67 feet which had previously tested salt water. This well is a few hundred feet northeast of Driscoll's No. 8 which at 2,469 feet was a big gas well and the discovery well of the pool, which is about 12 miles from the Cole gas field on the southwest and the same from the Piedras Pintas Field on the northeast. Total depth on No. 9, which failed to find the 2,469-foot sand of No. 8, was first reported at 3,005 feet but a corrected measurement gives the total depth now as 2,989 feet. The amount of oil the well was making before it began to make salt water was such as to add a great deal of importance to the territory and its chances of being an oil field Additional work is to be done on the well and an effort will be made to bring it in again without the water. Driscoll has made a location for his No. 11. No. 10 is located northwest of No. 8 and is a gas well at the same depth. Also Edward St. Albans of Laredo, the only person thus far who has negotiated for some acreage from Driscoll, has a geologist in the field making a location some distance north of the Driscoll well and will start to drill soon.

The Driscoll well, trying to bring in a second sand in a field with only two wells in the first sand, and the completion of another Cole Petroleum Co. well in Webb County in Survey 412, making oil with gas, are probably the biggest of the wildcat features in that part of Southwest Texas. Another feature is the making of 11 new locations in the district, several of which are in proven territory but with 6 in wildcat or semi-proven territory.

Cole Petroleum Co., in Survey 412, in which it recently completed No. 51 Benavides, last reported flowing 161 bbls. a day in steel storage on a half-inch choke from a depth of 2,324 feet, has completed No. 52 Benavides a little to the northeast at approximately the same depth and it is coming in like the other making considerable gas, reported at about 3,000,000 feet, and making oil about like No. 51. No. 51 started off with 20 bbls a day and has increased to 161 bbls. daily. No. 53 is nearly down to the sand and location is being made for two others. One other well farther to the east is making a small amount of oil and this field from this on will be reported in the proven fields.

Kohler Field

Humble Oil & Refining Co.'s No. 7 Kohler in Duval County, 12 miles north of the Cole Field and 300 feet south of two producers, is a disappointment. No. 4 Kohler in Survey 400, near the west line of Duval County, found production at 2,709 feet, in April, 1927, and No. 6.

(Continued on Page 117)

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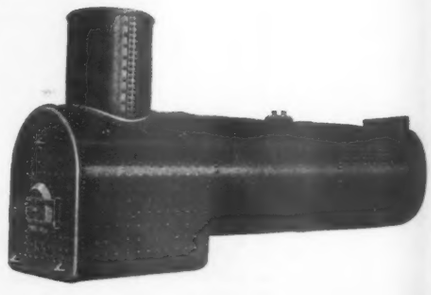

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Twenty-five Rigs in South Liberty

Predicted Within 30 Days Following Bringing in of Two More Wells North of Original Field Limits

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Mar. 5.—Predictions that 25 new rigs will be running in the South Liberty district within the next 30 days have been made by authoritative Gulf Coast operators following the bringing in of two more wells north of the original field limits, one of which is 1½ miles northwest of production.

South Liberty, in the south central part of Liberty County about 40 miles east and north of Houston, promises to become one of the most active spots in the coastal territory, overshadowing several wildcat fields which have been opened in southern Louisiana in the past several months.

Following the completion during the week of The Texas Company's No. 1 Green, 1½ miles northwest of production, and the Sun Oil Co.'s No. 1 Mitchell, an offset to Yount Lee Oil Co.'s extension well brought in January 20, locations were staked immediately for three more tests and in addition to these three other tentative locations have been made.

That 25 more rigs will be running in 30 days is more than likely, according to operators, in view of the fact that near The Texas Co.'s well are a number of tracts ranging from 4 to 20 acres on each of which offsets may be required. As all available acreage had not been taken up, the week was marked by a rush of engineers and land men to the district which has given Liberty the appearance of a new boom.

The Texas Company's well, which came in Monday flowing at the rate of 2,500 bbls. of 25.4 gravity oil still was flowing around 1,500 bbls. daily as the week closed. The well is of particular significance as the production is from a comparatively shallow depth of 2,288 feet while in the field proper the sand ranges from 3,200 to 3,500 feet.

The other two extension wells, Yount Lee's No 1 Mitchell and Sun Oil Co.'s No. 1 Mitchell, which are only about 500 feet north of production, have production from approximately the same level as in the field proper. Sun company's producer, the latest of the three, came in flowing around 200 bbls. daily, but soon increased to about 700 bbls. Yount Lee's well, however, made only about 200 bbls. daily.

The meaning of the Liberty discovery has aroused considerable speculation among operators here. It is possible that the new well of The Texas Company has found the main big pool of the Liberty Dome and that the original field may have been just a small spot on one side of a salt mass which extends between the present field and the new well.

If this is true the Liberty Dome may turn out one of the most prolific producers in coastal territory, and in view of the varied lease ownerships, may develop into a large flush field. The latter, however, is contrary to conditions which exist in most other new fields being prospected in which all acreage is held by a few large companies, generally jointly.

Two other tests are drilling in the extension district, both as offsets to Yount Lee's first well. One of these is being drilled by The Texas Company and one by Yount Lee Oil Co. The Texas Company has a location for No. 2 Green, the Sun Oil Co. has a location for No. 1 Bashara and tentative locations for No. 2 Bashara and No. 1 Singleton. J S. Abercrombie has a location for No. 1 Lacour.

There were only two other completions of particular interest the past week, one being at Nash Dome in Fort Bend County where Rycade Oil Corp., the sole operator, brought in another good well. This was No. 22 Wisdom, making an initial flow at the rate of 2,200 bbls. At Blue Ridge, Fort Bend County, H. R. Cullen got the other good well, No. 1 Davidson, making 2,200 bbls.

Four other smaller producers were completed at Blue Ridge, while Spindletop got 3 wells; Hull, 2; Pierce Junction 1 workover; Vinton, La., a small well; Jennings, La., a small one; Orange, 1; Batson, 1, and Sour Lake, 1. Of significance among tests abandoned were two wildcats, Gulf Production Co.'s No. 5 Sanborn, Hawkinsville, Matagorda County, which was in gyp at 1,060 feet, and the same company's No. 4 Bordages at Fannette, Jefferson County, which bailed salt water.

Production in Gulf Coast fields as a whole was comparatively steady the past week with the total daily average at 119,535 bbls. This was a slight increase of 352 bbls. A number of fields, including Spindletop, declined sharply with no new production of importance being added, but increases at Nash Dome and Liberty and a few others more than offset any losses elsewhere.

Daily average production by fields for the week ending March 3 was:

Gulf Coast

Spindletop	35,215
Saratoga	996
Batson	1,450
Goose Creek	7,166
Sour Lake	3,556
Hull	12,004
Big Creek	2,170
Columbia	8,078
Humble	3,994
Pierce Junction	8,895
Blue Ridge	3,347
Markham	200
Orange	4,670
Damon Mound	855
Day on	233
South Liberty	3,627
High Island	389
Moores Field	104
Boling	2,469
Nash Dome	3,005
Barber's Hill	650
Vinton	4,585
Starks	226
Edgerly	1,321
Evangeline	968
Lockport	4,577
Sweet Lake	1,325
Sulphur	160
Hackberry	1,660
Sorrento	1,500
Miscellaneous	200
Total this week	119,535
Total last week	119,183
Increase	352

Daily average production in Southwest Texas fields also continued steady, but in East Central Texas fields there was a decrease of 302 bbls. Daily average production in these fields was:

Southwest Texas

Somerset	2,131
Lytton Springs	1,496
Dale	631
Luling	14,195
Miscellaneous	8,678
Total this week	27,131
Total last week	27,309
Increase	178

East Central Texas

Mexia	7,668
Cedar Creek	960
Nigger Creek	860
Currie	501
Wortham	2,030
Richland	553
Powell	12,226
Total this week	24,798
Total last week	25,100
Decrease	302

Sorrento Dome

Gulf Refining Co.'s wildcat producer on the Sorrento Dome, near McElroy, in Ascension Parish, east of the Mississippi River, continued to flow the past week, and at the close of the week was making around 1,200 to 1,500 bbls. daily through a choke, most of the time pipe-line oil.

Operators are waiting the outcome of No. 5 United Land Co., which will be tested this week. This well may be a little too far west, being 600 feet west of No. 4, the discovery well. It ran between 50 and 60 feet lower than No. 4 on the cap rock. If this test does not turn out as good as No. 4, it will not be discouraging, as officials of the Gulf are of the opinion the pool probably lies more to the south.

At Lost Lake, in the northern part of Chambers County, Texas, east of Houston, Pure Oil Co. has cemented 8¼-inch casing at 3,567 feet in its No. 1 Lost River, a test which is being followed very closely. Total depth of this hole is 3,575 feet. This test probably will be tested in the near future.

Clemens Dome, in Brazoria County, received another disappointment during the week when Roxana Petroleum Corp. gave up its No. 2 Bell as a dry proposition after drilling at 5,971 feet. A shallow test on this dome also was abandoned, this being Madgett & Abercrombie's No. 1 Davidson, which was dry at 666 feet.

On Allen Dome, also Brazoria County, Roxana Corp. is drilling at 4,733 feet in a sidetracked hole in No. 1 Random. Its No. 4 Allen is being placed on the pump.

Humble Oil & Refining Co. is drilling in blue shale at 3,132 feet in its No. 1 Sugarland at Dewalt, Fort Bend County, another new wildcat venture. At Hockley, Harris County, Humble has a location for another test, No. 2 Tex-Warren. No. 2 Warren is drilling shale at 4,335 feet.

Miscellaneous Texas Wildcats

Alexander & Lyle have abandoned their No. 1 Goebel, in Austin County, and will skid the derrick for a new hole. This test was drilled to 2,750 feet and was in gumbo when abandoned. Carl Milentz (T. E. Waldrop) also has abandoned his No. 1 Auerbach, near Glidden, in Colo-

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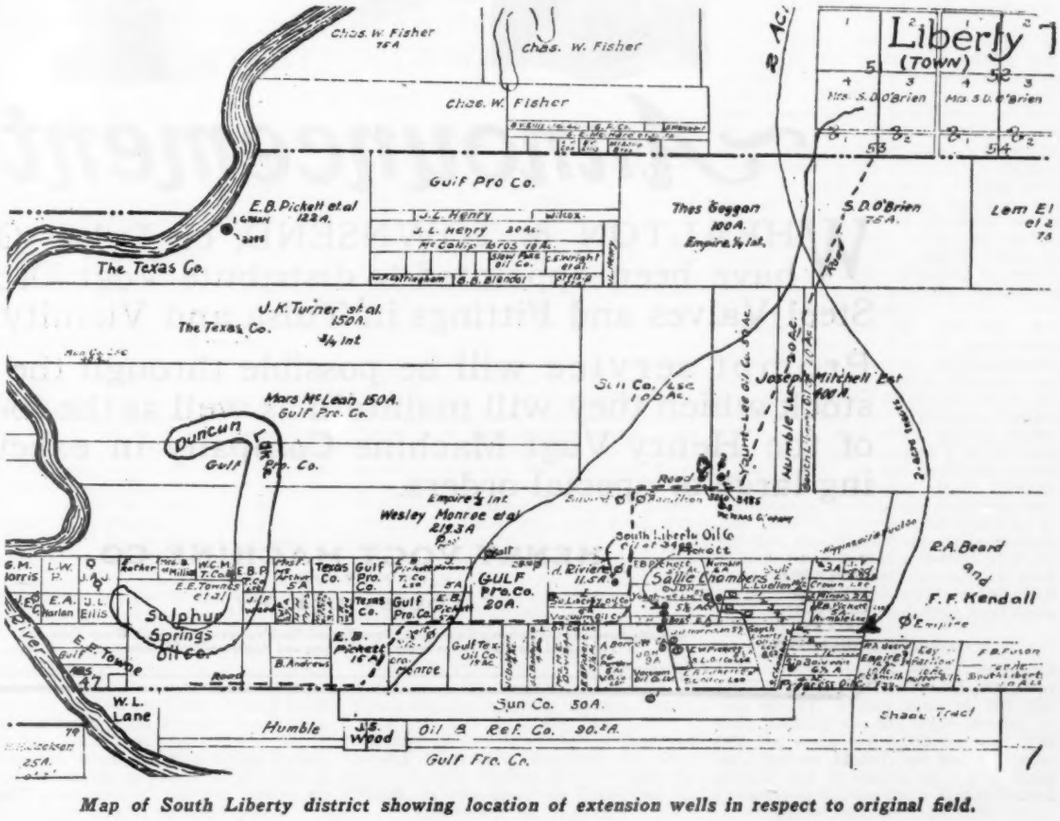
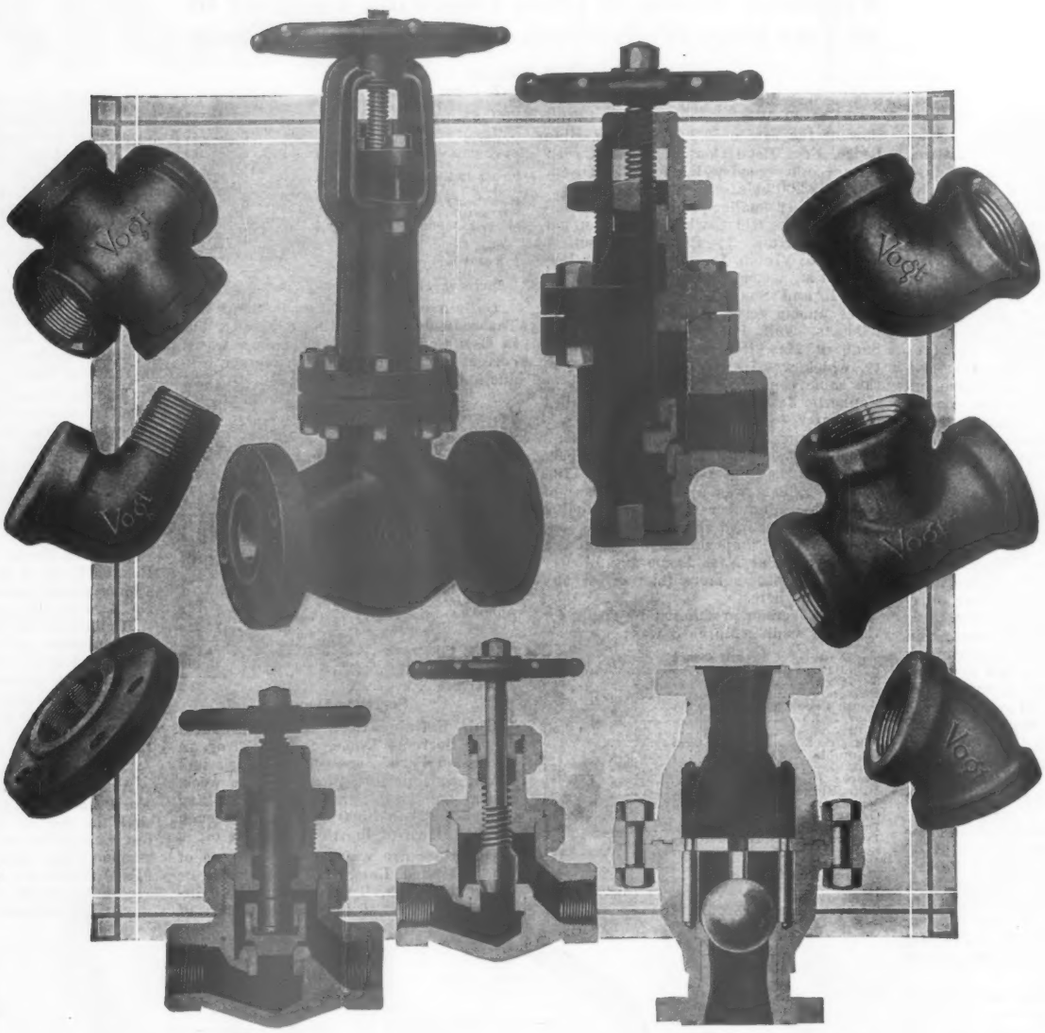


Map of South Liberty district showing location of extension wells in respect to original field.



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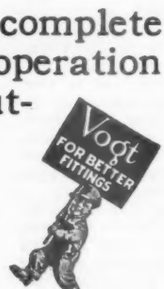

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New Locations in Louisiana-Arkansas

Activities on Older Operations Also Significant of Revived Interest in Development. Search for Gas Notable Feature

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas.

SHREVEPORT, La., Mar. 5.—If new locations and activities on old ones leading to drilling are any criterion, North Louisiana and Arkansas territory should, during the next few weeks, come out of the state of almost complete shutdown in which it has been for the past two or three months. The field report for the week just closed shows 32 new locations in addition to changes in the status of a dozen or more wells that have been carried on the report for a long time as locations, derricks, rigged up, etc. There is also a distinct change in the objective of most of these new operations, which leads to the opinion that most of the new drilling has gas instead of oil as the objective. This territory has ceased to be "oil country" and has become "gas country" so far as wildcatting for new production is concerned. With half a dozen major pipelines taking gas to cities many miles away and as many more projected, the operator who gets a gas well doesn't have to hunt very long or very far for a buyer, provided he has any substantial initial open flow.

Of the 20 completions this week, 9 were gassers with 107,122,430 feet initial open flow, 1 was a 100-bbl. pumper making half that much oil, and the remaining 10 were dry holes and abandoned locations.

Both Pine Island deep stuff and Champagnolle have been drilled long enough and often enough, and over a sufficiently wide area, for a definite conclusion to be reached as to what may be expected. This conclusion is not optimistic. It was hoped from showings obtained by Pittsburgh Oil & Development Co. in deepening No. 1 Herndon, Section 15-21-15, just west of this Trinity production in Caddo Parish, that the producing area might be proven west. But it isn't. With the bottom of the hole 7 feet in sand, total depth 4,017 feet, the test bailed salt water and is shut down waiting orders—which probably will be to salvage what casing they may, and abandon. Being a second completion, the first having been salt water at 3,948 feet, this apparently blasts hopes for production northwest of those wells that are now paying off.

Champagnolle Tests

Champagnolle tests were no more promising than the week's developments in Pine Island. Pure Oil Co. had a show for 10,000,000 feet of gas on drill stem test of No. 1 Gregory, Section 10-17-14, at 2,935 feet and is setting casing for a standing test. The show, evidently, is in the top of the sand from which Magnolia, Ohio, and Eddy Jones wells, farther east, are producing, and which this semiwildcat may have shown to rise to the west. This would be contrary to logs of wells in Sections 1-17-14 and 2-17-14, which have shown a sharp dip to the north, northwest, and west from the discovery well. Simmerall and others' No. 1 Finley in Section 12-17-14, upon which much faith and hope had been laid as proving the trend of production southeast, is not looking so well. It is full of salt water, total depth 3,079 feet, and production north is from around 3,030 feet, with surface elevations about the same. Several miles south of this territory, in the old Lawson-Urbana district, which loomed a year ago as a prospective gas field of large volume and heavy pressure, and turned out to be a salt-water field, Lyell and others' No. 1 Stegall was dry on drill-stem test at 2,291 feet.

Carterville's prospective producer has turned out as most of that field's promising producers have—negative. Palmer Corp.'s No. 1 Robertson, Section 26-23-12, after showing two weeks ago for a big producer, has settled down to flowing by heads 100 bbls. fluid, 50 per cent water.

Wildcat Completions

Wildcats accounted for most of the completions during the week. The Greenwood district of Caddo Parish produced a failure in Magnolia Petroleum Co.'s No. 1 J. W. Furrh, Section 28-18-16, total depth 2,753 feet. Grayson and other's No. 11 Crockett, Section 6-12-5, Caldwell Parish, was abandoned at 2,692 feet after standing as temporarily abandoned at that depth since last August. In Bienville Parish, Edwin J. Forrest abandoned No. 1 Perritt, Section 11-17-6, as a salt-water hole at 3,048 feet after a drill-stem test of 10 feet of sand. Standard Oil Co. gave up trying to make a well of No. 1 Tensas, Section 23-8-5, Catahoula Parish, and abandoned the hole at 3,679 feet.

Zwolle Oil & Gas Co. abandoned No. 6 Bowman Hicks Coll, Section 8-7-12, Sabine Parish, at 3,710 feet. Interstate Natural Gas Co.'s No. 1 Parks, Section 23-20-3e, Union Parish, a derrick, is abandoned. It also abandoned No. 1 Stephens, Section 6-21-4, Union Parish, a location. Palmer Corp.'s No. 1 White, Section 2-19-10, West Carroll Parish, was abandoned at 2,445 feet as a salt-water hole after plugging back from 2,849 feet to test a gas and oil show. In East Texas, Magnolia Petroleum Co. abandoned No. 1 Pickering Lumber Co. in the W. J. Crane Survey, Shelby County, at 3,805 feet.

Decline in daily average runs from the field, which had slackened during the past two or three weeks, returned to its normal rate the last week with a difference of 635 bbls. for the territory as a whole. North Louisiana pools gained 375 bbls., but a slump of 1,010 bbls. in Arkansas production wiped out the advantage. Daily average runs from the several pools in this territory were:

Louisiana	
Caddo, light	11,635
Caddo, heavy	4,020
Homer	4,380
Haynesville	6,415
De Soto-Red River	4,195
Elm Grove	670
Bellevue	975
Cotton Valley	4,520
Urania	7,820
Pleasant Hill	670
Total	45,300
Arkansas	
El Dorado	5,110
Smackover, light	8,490
Smackover, heavy	66,940
Stephens	1,060
Nevada County	1,710
Lisbon	2,315
Champagnolle	1,000
Bradley	100
Total	86,725
Total both states	132,025
Total previous week	132,660
Decrease	635

NORTH LOUISIANA

Bossier Parish

Cartersville—Atlantic Oil Producing Co. is setting 6⅝-inch casing at 3,064 feet on No. 1 Bain, Section 31-23-11. Magnolia Petroleum Co.'s No. 1 Cason, Section 1-22-12, is drilling hard sand at 2,701 feet and No. 1 Matlock, a new location, 660 feet north and west SE cor. SW, Section 25-23-12, has rig up ready to drill. Natural Gas Products Co. began drilling No. 1 Floyd, Section 25-23-12, February 22 and has 12½-inch surface casing set at 400 feet and 8-inch at 1,100 feet. Sales & Walker resumed drilling after repairs to rig and have cemented 6-inch casing at 3,054 feet. The Texas Company is arranging to shoot 2 feet of sand 3,079-81 feet after testing 4,000,000 feet of gas in No. 2 Wilkinson, Section 36-23-12. Woodley & Collins' No. 1 Bain, Section 31-23-12, is coring at 3,055 feet to find 6-inch casing seat; No. 1 Bollinger, Section 36-23-12, has reset 8-inch casing at 806 feet, total depth 3,050 feet.

Bellevue—Humble Oil Refining Co.'s No. 30 Bliss & Wetherbee, Section 15-19-11, cored a hard sand at 5,291 feet.

Elm Grove and Sligo—C. F. Davis' No. 5 Simpson, Section 14-16-12, is shut down at 2,230 feet. Ellis & Markley are drilling No. 5 Hunter, Section 14-16-12, at 1,580 feet. H. S. Goodwin's No. 1 Mercer set 4½-inch casing with packer at 1,582 feet, tested salt water, drilled to 1,800 feet and after cementing 4½-inch casing are drilling at 1,900 feet; No. 2 Curtis, Section 36-17-13, tested dry at 2,650 feet and is drilling at 2,703 feet. J. S. McCullough has cemented 6-inch casing at 1,542 feet on No. 6 Hodges, Section 25-16-12. Palmer Corp. has derrick up for No. 9-B Hodges, 2,030 feet east and 425 feet north SW cor. NW, Section 25-16-12. R. O. Roy's No. 7 Caplis, Section 25-16-12, is drilling at 885 feet.

Caddo Parish

Greenwood—Belchic & Laskey's No. 4 R. T. Sharp, Section 10-18-16, shut down at 1,150 feet on last report, has 8-inch casing cemented at 1,250 feet. Magnolia Petroleum Co.'s No. 2 Bell, Section 4-17-16, is in chalk at 1,400 feet and No. 2 Furrh is a location 260 feet north and west SE cor. NE, Section 28-18-16, one location south of No. 1 dry and abandoned this week at 2,753 feet.

Mooringsport and Oil City—Standard Oil Co. began drilling No. 1-B A. L. Barry, February 27, and is down 800 feet. Location is 20 feet south and 275 feet west NE cor. SE NW, Section 11-21-16.

Pine Island—Dixie Oil Co.'s No. 81 Dillon, Section 13-21-15, is drilling lime at 4,057 feet. On prior completion this well was a 35,000,000-foot gasser on original completion at 3,775 feet last May 12 and has been in shale and lime ever since deepening began with no shows being developed. No. 91 Dillon in Section 14-21-15, which has been standing as a derrick since last October rigged up and started drilling during the week and is down 380 feet with 15½-inch surface casing set at 131 feet; No. 92 Dillon in Section 13-21-15, is arranging to test at 4,075 feet and No. 4 H. H. Huckaby is in sand at 3,978 feet.

Magnolia Petroleum Co.'s No. 8-A Hampton, Section 15-21-15, cored sandy shale at 4,002 feet; No. 22 Robertshaw, Section 23-21-15, is setting 8⅛-inch casing at 3,871 feet. Pittsburgh Oil & Development Co.'s No. 1 Herndon, Section 15-21-15, is shut down waiting orders after getting salt water in 7 feet of sand 3,010-17 feet. It had previously tested salt water at 2,948 feet. D. C. Richardson estate's No. 6 Youree-Randolph, Section 13-20-15, has cemented 6-inch at 2,233 feet. The Texas Company is resetting liner in No. 9 Herndon, Section 14-21-15, total depth 3,907 feet, reported last week as arranging to blow with air; No. 13-B Noel is fishing for lost tubing, total depth 3,979 feet.

Monroe District

Morehouse Parish—Elbert Petroleum Co.'s No. 1 Morehouse Planting Co., Section 40-19-7, is shut down at 760 feet. Gulf Refining Co. has made location 1,072 feet south and 3,282 feet east NW cor., Section 42-20-7, for No. 1 Higginbotham and is rigging up. The Texas Company is drilling No. 1 Myers, Section

(Continued on Page 118)

BIG GASSER FROM LOWER HORIZON TURNS ATTENTION TO WASKOM AREA

By D. H. Bancroft

SHREVEPORT, La., Mar. 5.—Completion of a 16,000,000-foot initial open-flow gas well at 2,857 feet, in Waskom, may mean the resurrection of a gas field which, in local opinion, had shot its last bolt and could no longer be considered as a dependable source of fuel in any quantity. Waterman Brick & Tile Co.'s No. 5 Hickman, in the E. Pollock Survey, is the well in question, and is the third to furnish commercial production from the lower horizon. Heretofore, development in Waskom has been confined to the two shallow sands in which recent wells averaging 2,000,000 to 3,000,000 feet at steadily decreasing rock pressures had been construed as marking the approaching end of the field as a determining factor. There has been little development of the deeper sands, but with the upper horizons about played out, and the market remaining as large or larger, it is reasonable to suppose that Waskom will remain an active territory for at least a couple of years.

More news of interest to those watching gas development in this territory is completion by Natural Gas & Producing Co. of No. 1 Waldrop, Section 7-21-3e, Union Parish. With 500,000 feet of gas initial flow, it is scarcely a commercial well, but it does indicate possibilities of territory 7 miles northwest of the present defined limits of the Monroe proven area. At the same time, John Potts' No. 1 Bernstein, Section 30-20-4, Union Parish, well within the proven area, was only a small producer at 2,155 feet, having an initial open flow of 6,000,000 feet.

Other completions reflecting the desire to develop more gas reserves throughout this territory included: Moody-Seagraves' No. 1 Wolf & McInnis, Section 13-20-4, Morehouse Parish, 12,000,000 feet gas at 2,174 feet; Jordan Drilling Co.'s No. 1 McGee, Section 10-18-4, Ouachita Parish, 3,000,000 feet gas at 2,218 feet; United Carbon Co.'s No. 1 Mulhern, Section 20-16-6, Richland Parish, 57,390,430 feet of gas, total depth 2,440 feet; C. H. Lyons and others' No. 1 Sexton, Section 36-21-10, Webster Parish (Cotton Valley), 9,000,000 feet of gas at 2,652 feet.

Mississippi-Waskom Gas Co. completed No. 2 Bush in the northeast corner T. D. Wilson Survey of Harrison County, Texas, as a 2,000,000-foot gasser, total depth 1,909 feet, before the location ever got on the books. In Panola County, Magnolia Petroleum Co. completed No. 3 Ella Baker, John Womack Survey, as a gasser gauging 2,232,000 feet, total depth 980 feet.

West Carroll Parish's bid for attention, Palmer Corp.'s No. 1 White, Section 2-19-10e, passes out of the picture—abandoned at 2,445 feet as a salt water hole after plugging back from 2,849 feet to test a sand that developed a blowout.

Magnolia Petroleum Co. abandoned No. 1 Pickering Lumber Co., in the W. J. Crane Survey, in Shelby County, Texas, as a dry hole at 3,805 feet, after a "Shelby show" failed to produce at around 3,700 feet. Standard Oil Co.'s No. 1 Tensas, Section 23-8-5, Catahoula Parish, is abandoned at 3,697 feet in

(Continued on Page 81)

Another outstanding Emsco safety feature

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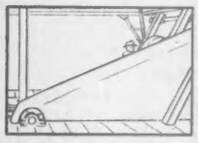
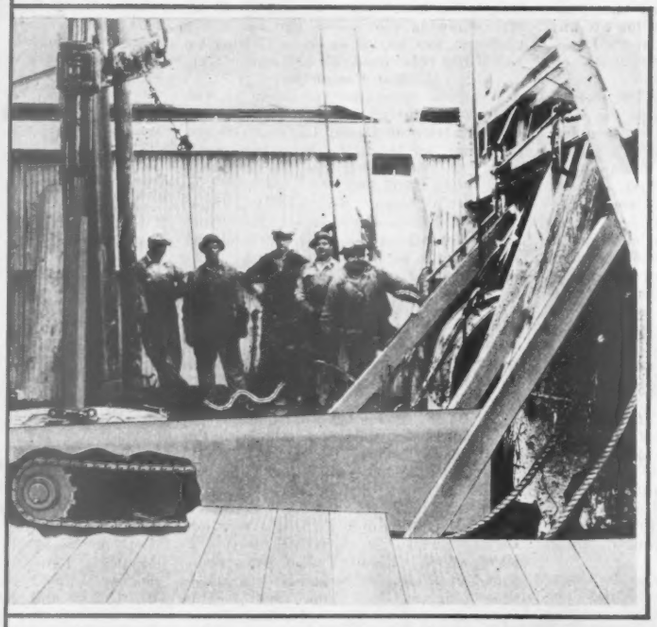
the dangerous practices made possible and encouraged by the old type of high-chain drive to the rotary. Make it impossible for the cathead operator

or the other men on the derrick floor to pass between the two lines of chain. Do away with the old-fashioned guard necessitated by the high chain drive



which hides the rest of the floor from the driller at the brake. Standardize on the Emsco low chain drive for safety!



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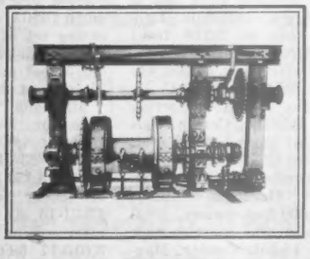

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Are Safe

Oregon Basin Most Interesting Area

Test in Carbon County Less Encouraging but Still Regarded as Most Important. New Leasing Rules in New Mexico

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Mar. 3.—Snowstorms and cold weather hindered drilling operations to some extent in the Rocky Mountain area the past week, but the storm soon passed. In Wyoming, there were no completions reported, and the Oregon Basin operation in Park County, and the discovery in the Pennsylvanian in Carbon County by the Producers & Refiners Corp. take first place in interest. The discovery well on the Oregon Basin structure after making only around 400 bbls. a day, is being cleaned out and deepened. The Cody Petroleum Co.'s No. 1 Klindt is holding to around 550 bbls. while drilling, and the Ohio Oil Co. has found the sand saturated in its No. 3 Sonners, Account 1. The Carbon County discovery is showing water and is not as encouraging as at first, but is, nevertheless, considered an important development as it is the first Pennsylvanian test in southern Wyoming.

In New Mexico, the Empire Gas & Fuel Co. has made a location in Lea County in Section 8-21-35, and the Snowden & McSweeney interests are starting a test in Chaves County, in Section 27-15-23. The State Land Board has made new rules for disposition of State leases in Eddy, Lea and Chaves Counties, putting them on a competitive bidding basis. Considerable trading in leases in the northwestern part of the State is reported and activity in that district is on the increase. In San Juan County, the A. Johnson, trustee, well has a show for nearly 1,000,000 feet of gas.

Utah is to have another salt dome test in Grand County where a tentative location has been made for the Utah Southern Oil Co. and affiliated interests on the Salt Valley anticline.

In Colorado, the Midwest Refining Co.'s No. 4-M Shaw, on the Iles Dome, made 2,400 bbls. in 24 hours when drilled 4 feet deeper, and the Texas Production Co.'s No. 10 Knowlton on the Moffat Dome has definitely proved commercial production in the Sundance, the well making 480 bbls. in 24 hours while drilling. The Texas Production Co. is entering the old Florence Field where a new extension recently has been opened up, and in Jackson County, the Continental Oil Co.'s three tests are at a critical stage.

Wyoming

The Oregon Basin operation in Park County is continuing to hold first place in Wyoming activities though interest at present is fairly well divided between that and the Producers & Refiners Corp.'s discovery in Carbon County. The wide publicity given the Oregon Basin Field, the starting of townsite propositions, and other activities has resulted in an influx of people which has crowded the town of Cody to capacity. Among the newcomers were many without bank rolls looking for jobs and the obvious has happened. There are not jobs for all seeking work and the result was that the Cody Commercial Club issued warnings to job seekers to stay away. The field furnishes employment for about 175 men at present and as operations increase, the number will become larger, but most of the openings expected already have been applied for.

The principal feature of the past week's developments was the opening of the Ohio Oil Co.'s No. 1 Sonners, Account 1 (formerly No. 3 Sonners), NW NW NE, Section 8-51-100, the discovery well, which was completed nearly a year ago in the Embar-Tensleep series at around 3,640 feet and shut in without being given a prolonged test. The well had been opened one time for a representative of the United States Bureau of Mines when it filled a 250-bbl. tank in 13 minutes. Other short tests were reported on the basis of which its capacity was generally estimated at around 3,000 bbls. a day. When opened to capacity the past week it made 447 bbls. the first 24 hours; 345 bbls. the second 24 hours; 399 bbls. the third period; 414 bbls. the fourth period, and 387 bbls. in the fifth 24-hour period. While this was far below what had been expected, it does not necessarily mean that this is the capacity of the well. It had been shut in for many months and it is probable that the hole has caved to some extent. When the five-days' test was completed, the well again was shut down. The tools had been moved away, but these have been moved back, the hole is being cleaned out and probably drilled a few feet deeper.

Showing Saturation

The Ohio Oil Co.'s No. 3 Sonners, Account 1 (formerly No. 4 Sonners), C NW NW, Section 8 51-100, half a mile to the west of the discovery, is coring the Embar sand topped at 3,351 feet, the sand showing saturation. It is expected that the well will be completed by Saturday. This is an old well which encountered gas in the upper horizons and which recently was re-entered for the purpose of drilling it down to the Embar-Tensleep sands which yielded the production in the discovery. Same company's No. 2 Wilson, NE cor., Section 4-51-100, is about ready to commence spudding with rotary tools. No. 1 Baston, NE cor., Section 6 50-100, which topped the Embar at 3,365 feet and found the sand saturated when cored, has completed rigging up with cable tools and is drilling in at 3,427 feet. Cody Petroleum Co.'s No. 1 Klindt, NE SE NE, Section 7-51-100, which topped the Embar at 3,539 feet, is drilling at 3,760 feet and is flowing by heads, the quantity of oil remaining about the same, or 550 bbls. per day. It still has about 12 feet to go to reach the Tensleep where an increase in production is expected. Drilling is going ahead slowly on account of the oil in the hole. The company's tankage is full and it is a problem to know what to do with the oil. Some oil is being moved out through the Illinois Pipe Line Co.'s line to Cody, which relieves the situation to some extent. Same company's No. 2 Klindt, Section 7-51-100, is drilling at 2,500 feet.

The Ferdig-Wyoming Co.'s No. 1 Hough, NW cor. SE, Section 19-51-100, is drilling at 3,316 feet in the red beds with the expectation that the top of the Embar will be reached within the coming week. This well is located midway between the strikes on the north and south domes and will determine to some extent whether the area will be oil or gas producing. It already has been through some water and also considerable gas and one showing of green oil. Producers & Refiners' No. 1 Frisby, SW cor. NE, Section 32-52-100, is drilling at 1,500 feet with rotary tools. Continental Oil Co.'s No. 1-A State, NW cor., Section 16-51-100, is still fishing at 1,610 feet. Linco Petroleum Co.'s No. 1 Rousseau, SW cor. NE, Section 33-51-100, is drilling at 2,500 feet. Ostland Development Co.'s No. 1 Rausch, NW cor., Section 9 51-100, is bottomed at 2,070 feet and underreaming at 1,850 feet to lower the 8¼-inch casing. Charles E. Orchard's No. 1 Rue, SW cor., Section 28-51-100, is fishing for casing.

Analysis of Cody Crude

A report from Cody says that an analysis of the oil from the Cody Petroleum Co.'s No. 1 Klindt shows it to be of a better grade than generally supposed. The oil generally has been classed as a heavy black asphalt crude, but this analysis shows considerable lubricating stock of paraffin base with traces of asphalt containing 1½ per cent sulphur. The gravity is 24. According to this analysis the percentages are as follows:

Gasoline, 21 per cent, 56.8 gravity.
Kerosene, 10 per cent, 37 gravity.
Gas oil, 19 per cent, 29 gravity.
Light wax distillate, 17.2 per cent, 23.5 gravity.
Heavy wax distillate, 16.2 per cent, 23.5 gravity.

The remainder may be used for road oil and fuel oil.

On the Shoshone anticline in Park County, the Ohio Oil Co.'s No. 5-A Pulley, Section 27-53-101, has straightened out a crooked hole and is standing cemented at 2,080 feet. The Union Oil Co. of California's No. 1 Taylor, Section 22-47-100, North Sunshine structure, is cleaning out at 3,712 feet. This test apparently is going on down to the Amsden sand. It had good showings of oil in the Embar and Tensleep, the latter being topped at 3,486 feet.

There were no completions in Salt Creek reported for the week, and nothing of importance was reported from the LaBarge district in southwestern Wyoming, where operations are at a low ebb for the winter with most of the drilling wells shut down until spring.

Carbon County

Reports from the Producers & Refiners' No. 19, NW cor. SE, Section 25-26-87, East Ferris Dome, in Carbon County, were not so encouraging this week, though the importance of the discovery is not minimized even should the well fail to be a commercial producer. The well was reported two weeks ago as entering the Tensleep sand in the Pennsylvanian at 4,525 feet and making 25 bbls. an hour from 2 feet of sand. The oil was light green in color, tested 36 gravity and had a paraffin base. This is the first test to reach that horizon in southern Wyoming and one of the principal features of the strike was the quality of the oil which is entirely different from that found in the Tensleep and Embar sands in the Lander and Big Horn Basin Pools in the central and northern parts of the State. Another peculiar feature was that the Embar sand usually found just above the Tensleep, was not in place. The 6¼-inch casing was run to the top of the sand where it was planned to drill deeper with a 4½-inch bit. Late reports from the well are to the effect that the production has dropped to 100 bbls. of oil and an equal quantity of water per day. Just what has taken place in the way of additional drilling, if anything, is not at present known as some of the roads have been closed by snow storms, and the scouts were unable to get to the well until a few days ago.

Even should the well prove not to be commercial, it still will be an important discovery, and will result in more exploration to the new horizon in southern Wyoming. Running east and west across Carbon County just north of the discov-

(Continued on Page 82)

TWO MORE TURNER VALLEY TESTS HAVE WET GAS PRODUCTION

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Mar. 3.—In the Turner Valley Field, two more tests have got wet gas production in the Madison limestone. McLeod Oil Co. No. 1, LSD 16, Section 1-20-3w5, blew into production at 3,915 feet. The wet gas flow was measured at 10,500,000 feet a day, of which approximately 9,000,000 feet is coming from the deep lime through the 6-inch casing and the rest from the upper horizons between the 6-inch and 8-inch. The well is making around 5 bbls. an hour, or 120 bbls. a day, of crude naphtha, without any pressure being applied; and under pressure it is expected to make between 150 and 180 bbls. The test got its production at around 75 to 80 feet in the lime, an unusually high point. The tools were taken out when the well blew in; McLeod No. 1 is the only cable tool test in the Truner Valley Field to finish in the deep lime without a string of tools in the hole. McLeod No. 1 was originally a small producer of light crude in the Blairmore-Dakota horizon at 2,400 feet. It was finished at this depth about 1923. Subsequently, the McLeod Oil Co. got production in the deep lime; and as No. 1 was making only around 9 bbls. a day, it was determined last fall to carry the test to the same horizon. The deepening was handled by Roy Widney and Charles Cairns. McLeod Oil Co. now has three producers, No. 1 making 120 bbls. or better from the deep lime, No. 2 making around 40 bbls. from the same horizon; and No. 3 in the Blairmore-Dakota at 3,200 feet, making about 29 bbls. a day of light crude. The west gas flow from No. 2 is around 2,500,000 feet a day. McLeod No. 4 has been located in the same LSD and work has been commenced on the cellar; drilling will be started as soon as it can be rigged up. No. 4 will likely be carried to the deep lime, unless a good production is encountered in the Blairmore-Dakota.

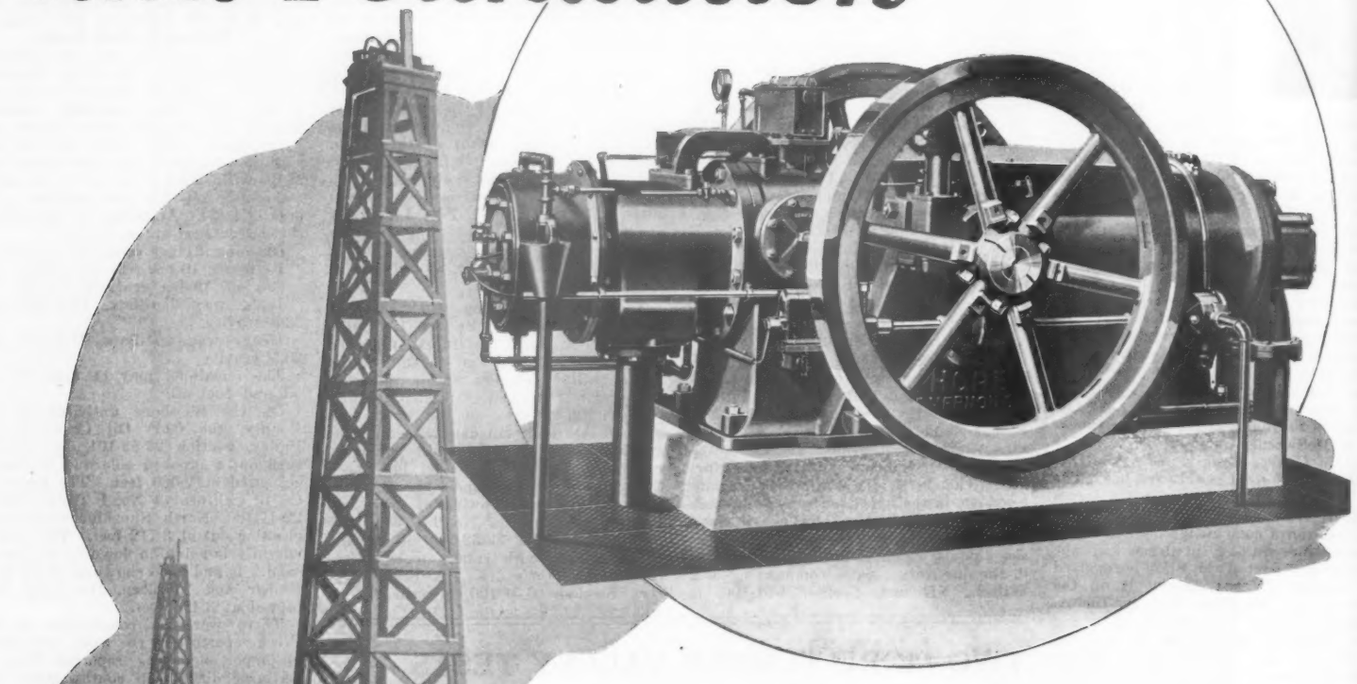
May Rival Royalite No. 4

Closely following the McLeod No. 1, Dalhousie No. 1, LSD 4, Section 18-20-2w4, got a big wet gas production in the Madison limestone at 4,565 feet. Dalhousie No. 1 is expected to come close to Royalite No. 4 naphtha gusher as a producer. Although the diamond drill stem is still in the hole with a three-eighths-inch space around the rods, the well started to make 8,000,000 feet a day of wet gas. Owing to the rapid freezing resulting from high pressure, the well quickly froze, and at last reports the drillers were waiting for the well to blow itself clear. Finishing the well is expected to be a rather ticklish job. Water under 600 pounds pressure is being pumped down inside the drill to induce thawing. When the drill stem is got out, a big increase in wet gas production is looked for; but the job of clearing the well may take several weeks. Production was encountered at 140 feet in the Madison.

Dalhousie No. 1 is the old Southern Alberta flowing well, which in 1915 got light oil production in the upper horizons around 3,725 feet. For some years the

(Continued on Page 114)

More Booster Value – Less Money in Building and Foundation



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HE-53

California Curtailment Seems Assured

Indications Now Are 50,000 Bbls. Daily of Light and Heavy Crude Will Be Shut in to Prevent Waste

By L. P. Stockman
Staff Correspondent, California Fields.

LOS ANGELES, Calif., Mar. 3.—With the proposed curtailment and conservation problems nearing solution it is quite probable that the program now being agreed upon by California producers will be put into effect in the very near future. The intricate engineering features peculiar to each field have been straightened out and while a few independent operators and landowners have refused to lend their co-operation this will not mitigate against a general restriction to any great extent. No official confirmation of the negotiations under way or the progress made to date is forthcoming from any of the executives of the larger companies and consequently no definite lineup is available of the various properties to be pinched in or shut down entirely. Developments now indicate that it will not be possible to effect the maximum restriction originally desired but it is believed that the present movement should result in an artificial curtailment of approximately 50,000 bbls. per day in light and heavy crude and a reduction of around 50,000,000 feet of natural gas.

The most interesting feature in connection with the conservation work under way is the fact that it has the hearty approval of all State officials, Governor Young having originally sponsored the move to effect a substantial reduction in the production of natural gas at Ventura Avenue in order to eliminate an economic waste resulting from the blowing off into the air of approximately 50,000,000 feet of natural gas per day due to the inability of pipe line companies to move this quantity out of the district. In other words, operators in the Ventura Avenue Field have been producing 50,000,000 feet of natural gas per day in excess of pipe line capacity and they have therefore been obliged to pop this excess off into the air. Engineers of the various companies interested in this district have agreed on an equitable basis for the elimination of the existing surplus but it will be necessary to curtail about 10,000 bbls. per day of light oil due to the high gas oil ratio. Ventura Avenue is a high pressure field and from the curtailment figures just mentioned it will be noted that natural gas production will be reduced 5,000 feet per day for every barrel shut in. It is not possible to inject this surplus gas back into the formation at Ventura Avenue due to excessive rock pressure and while it could be used for repressuring some of the older fields this is practically out of the question as it would necessitate the laying of an additional pipe line in order to make delivery. As the stiuation stands at present operators in the Ventura Avenue Field contemplate a reduction of 50,000,000 feet of natural gas per day notwithstanding the fact that this will entail the shutting in of 10,000 bbls. of light refining crude.

Eliminate All Waste

The object of the conservation movement under way is to eliminate all waste due to excessive production of both crude oil and natural gas. There has not been any excess production of light crude based on the operating status of refiners but fuel oil and heavy crude have been consistently piling up for a long time. With Venezuela crude being dumped on the Atlantic Coast at less than $1 per barrel and West Texas scheduled to show increased production of "sour" oil, California producers and refiners find themselves unable to dispose of any considerable quantity of fuel oil or refinery residuum in any of the eastern domestic markets. A total of 6,760,727 bbls. of refinery residuum was shipped to the Atlanti Coast by California companies during 1927 and the loss of this business, together with a probable substantial decrease in fuel oil shipments to Atlantic foreign ports due to competition with West Texas and Venezuela oil, will force California refiners and pipe line companies to store about 20,000,000 bbls. of heavy crude and fuel oil during the coming year unless producers shut in or curtail the present excess production of both light and heavy oil.

It is utterly impracticable to continue increasing stocks of heavy crude and fuel indefinitely both from a physical and economic standpoint. This is the reason California operators insist on an immediate substantial curtailment in the production of heavy crude and unless independent producers fall in line refiners may be forced to cut the price of heavy crude so severely that it will be necessary to temporarily suspend production operations.

With crude oil curtailment and natural gas conservation certain to become a reality in the very near future operators naturally anticipate a decided improvement in general conditions but the situation should be watched with the utmost care as there is many a slip between the cup and lip. The probable curtailment of 50,000 bbls. in production is bound to be of prime importance as daily production will be reduced by that amount, but on the other hand there is also a chance that increased production in several fields due to deep drilling may offset some of the advantage to be gained by the proposed restriction. I am rather inclined to believe that operators are underrating the potentiality of the recently discovered deep Bonner zone in the Alamitos Heights section of the Seal Beach Field and while it is true that there are only about 50 wells in shape mechanically to make a bid for production in this new deep zone located below the 6,600-foot level it would not take very many of them to add 20,000 bbls. per day to the field's present output if they should come in with an initial daily flow of say around 1,500 bbls. each.

Large Production Possible

If the Richfield can get a 400-bbl. well from 170 feet of sand on top of the structure and the Marland can get 1,000 bbls. per day from a 400-foot penetration out on the edge it is logical to assume that large production should be possible in a mechanically perfect well on top of the Alamitos Heights structure if the maximum penetration of around 500 feet is taken advantage of. The Marland finished No. 11 Selover a few days ago flowing 1,000 bbls. of relatively clean 30.1 gravity oil daily from the 6,600-foot level and this project, which is located in the extreme northwestern part of the Selover lease offsetting the Alamitos Heights town lot area, is the best Bonner zone completion listed up to the present time. No. 16 Selover, which was finished a short time previous, is making 800 bbls. per day at the present time, although it was necessary to install a gas lift in order to stimulate production. These two producers and No. 1 Bonner of the Richfield are the only three successful Bonner zone completions finished up to the present time but the potentiality of this recently discovered deep horizon will probably be definitely ascertained within the next two weeks unless something unforeseen delays the several deep projects scheduled for production tests in the Alamitos town lot section of the Seal Beach Field during this period.

George F. Getty's No. 12 Alamitos will probably be given a chance to produce within the next few days as this 6,500-foot hole has just been finished with a 4¼-inch oil string and cemented through perforations at approxmiately 6,000 feet. The Petroleum Securities has two projected deep zone wells under way at Alamitos Heights but these and two similar wells on the Cleaver property being carried down by Paul Getty will probably not be in a position to make a bid for production until along about the latter

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, Well and Location—	S-T-R	Depth	Status
Associated, No. 1 Cypress, Potrero	34- 2-14	5,408	testing
Associated, No. 2 Cypress, Potrero	34- 2-14	3,386	hd. sd. drilling
Smith & Carpenter, No. 1 Smith, Potrero	35- 2-14	5,408	gas well
Pet. Securities, No. 1 Connolly, Potrero	27- 2-14	4,398	sd. sh. drilling
Hurst Oil Corp., No. 1 Inglewood, Los Angeles Co.	28- 2-14	3,772	suspended
Mont. Park Oil Co., No. 1 Browning, Mont. Park	26- 1-12	3,940	suspended
Associated, No. 1 Patterson, Pico	13- 2-12	5,330	hd. sd. drilling
Shell, No. 1 Mission, San Fernando	4- 2-15	4,953	abandoning
Shell, No. 2 Mission, San Fernando	4- 2-15	Mtl.	building rig
Andrews, Otis, No. 1 Lancaster, Los Angeles Co.	23- 8-13	1,502	hd. sd. drilling
Security Pet. Co., No. 1 Lynwood, Los Angeles Co.	13- 3-13	3,990	sd. sh. drilling
Dominguez Ext., No. 1 Compton, Los Angeles Co.	27- 3-13	5,510	pipe trouble
San Clemente Oil Co., No. 1 Peck, Hawthorne	20- 3-14	5,760	suspended
Shell, No. 1 Dupree, Hawthorne	29- 3-14	5,380	hd. sd. drilling
Scott & Currier, No. 1 Hawthorne, L. A. County	33- 3-14	140	sd. drilling
White Behr, No. 1 Watson, L. A. County	21- 4-14	4,614	hd. sd. drilling
Buttrum, F. W., No. 1 Richfield, Orange Co.	36- 3- 9	3,251	gr. sd. drilling
Ohio Oil Co., No. 1 Anaheim, Orange Co.	9- 4-11	1,341	hd. sd. drilling
Olympic Ref. Co., No. 1 Sunset Beach, Orange Co.	19- 5-11	4,520	sd. sh. drilling
Getty, Geo. F., No. 1 Seal Beach, Orange Co.	14- 5-12	2,348	hd. sd. drilling
Shell, No. 1 Stern, Orange Co.	22- 3-10	3,991	hd. sd. drilling
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	2,281	hd. sd. drilling
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	2,248	hd. sd. drilling
Davenport O. & G. Co., No. 1 San Marcos, San Diego	30-12- 2	365	hd. sd. drilling
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	351	hd. sd. drilling
Mills, J. P., No. 1 Pueblo, San Diego Co.	18-15- 3	2,142	hd. sd. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Bolsa Chica, No. 1 Kettleman, Kings Co.	30-23-19	3,502	plugging back
General Pe.., No. 2 Ochsner, Kettleman Hills	28-22-18	6,770	showing gas
South Coalings, Well No. 1, Kettleman Hills	35-24-19	3,091	showing gas
Monocline Dev. Co., Well No. 1 Kettleman Hills	7-21-21	4,308	suspended
McPhail, Hugh, Well No. 1, Kettleman Hills	13-24-18	2,100	bailing
Milham Expitn., No. 1 Kettleman, Kings Co.	2-22-17	6,760	br. sh. drilling
Shell, No. 2 Berlywood, Moorpark	32- 3-20	6,420	cleaning out
Star Petroleum, No. 2 Canet, Ventura Co.	13- 3-23	6,500	hd. sd. drilling
Standard, No. 4 Saticoy, Ventura Co.	22- 2-22	821	sd. drilling
California West. Oil Co., No. 1 Elkins, Ventura Co.	5- 3-19	122	sd. drilling
Exline, Emma, No. 1 Saticoy, Ventura Co.	33- 3-21	Rig	rigging up
Petroleum Sec., No. 1 Diablo, Ventura Co.	26- 5-18	4,215	hd. sd. drilling
Parkford, E. A., No. 1 Strathern, Ventura Co.	5- 2-18	4,002	suspended
Shell, No. 1 Strathern, Ventura Co.	6- 2-18	3,721	hd. sd. drilling
Shell, No. 1 Oxnard, Ventura Co.	35- 2-22	1,983	sd. sh. drilling
Miley Oil Co., No. 1 Red Mountain, Ventura Co.	7- 3-23	980	cleaning out
Keck Inv. Co., No. 1 Fillmore, Ventura Co.	35- 4-20	4,192	hd. sd. drilling
McAdams, J. E., No. 1 Buttonwillow, Kern Co.	26-29-23	4,685	set pipe
Milham Expitn., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well
Milham Expitn., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well
Milham Expitn., No. 3 Buttonwillow, Kern Co.	8-28-23	2,710	hd. sd. drilling
Doheny-Stone, No. 1 Salisbury, Kern Co.	7-29-24	4,150	deepening
Sou. Calif. Gas Co., No. 1 Buttonwillow, Kern Co.	4-28-23	2,725	plugging back
Richfield Oil Co., No. 1 Semitropic, Kern Co.	21-26-22	1,620	hd. sd. drilling
Pacific Eastern, No. 1 Union Ave., Kern Co.	6-30-28	5,640	plugging back
Pacific Eastern, No. 2 Union Ave., Kern Co.	6-30-28	3,981	sd. sh. drilling
Jackson & Chamberlain, No. 1 Bakersfield, Kern Co.	19-29-28	Rig	rigging up
O'Donnell, J. E., No. 1 Greenfield, Kern Co.	31-30-28	690	sd. drilling
Superior Oil Co., No. 1 Edison, Kern Co.	24-29-29	1,829	hd. sd. drilling
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23-32-29	1,518	sd. drilling
Midway Northern, No. 1 Edison, Kern Co.	29-29-30	3,181	hd. sd. drilling
Shell, No. 1 Mon Bluff, Kern Co.	3-28-28	4,169	hd. sd. drilling
North American, No. 1-A Delano, Kern Co.	5-25-26	4,192	sd. sh. drilling
Fresno Madera Oil Co., No. 1 Clovis, Fresno	18-12-21	4,016	fishing
Barneyberg Oil Co., No. 1 Brown, San Luis Obispo	26-32-14	2,296	cleaning out
Richfield, No. 1 Wreden, San Luis Obispo Co.	10-29-17	3,130	suspended
Richfield Oil Co., No. 1 Carissa, San Luis Obispo Co.	15-29-17	2,540	will deepen
Union Oil Co., No. 1 Huasna, San Luis Obispo Co.	34-32-15	920	hd. sd. drilling
San Luis Syndicate, Well No. 1, San Luis Obispo Co.	29-31-15	2,219	fishing
Sequoia Oil Co., Well No. 1, San Mateo Co.	13- 7- 5	1,398	will test
Shell, No. 1 Cowell, San Mateo Co.	8- 6- 5	5,882	hd. sd. drilling
Shell, No. 1 Butts, San Mateo Co.	16- 6- 5	1,911	hd. sd. drilling
Shell, No. 1 Mossi, Petaluma	8- 5- 6	1,440	blew out
Thomas & Hammill, Well No. 1, Alameda Co.	16- 3- 3	1,070	water trouble
Tepesquit Oil Co., Well No. 1 Santa Barbara Co.	3- 9-32	1,692	sd. drilling
Becker, Geo. F., No. 1 Summerland, Santa Barbara	33- 4-25	3,045	br. sh. drilling
Twin State Oil Co., No. 1 Modoc, Santa Barbara Co.	20- 4-27	2,440	sd. sh. drilling
Fort Wayne Synd., No. 1 Goodcell, Madera Co.	22-10-17	2,250	skid. rig
Continental Oil Co., No. 2 Smith, Colusa Co.	31-18- 4	4,300	fishing
Colusa Oil Co., Well No. 1, Colusa Co.	31-15- 4	370	hd. sd. drilling
Marland Oil Co., No. 1 Bradley, Monterey Co.	32-24-11	122	sd. drilling
Shell, No. 1 Bradley, Monterey Co.	32-24-12	.....	building road
Nor.h Counties Oil Co., Well No. 2, Humboldt Co.	36- 2- 1	1,760	oil in hole
Humboldt Oil Co., Co., Humboldt Co.	6- 2- 1	2,860	hd. sd. drilling

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This Week	Daily Average	Total Last Week	Daily Average	This Year to Date	Same Time Last Year
Crude oil	86,007	12,287	74,713	10,673	1,266,344	1,547,431
Fuel oil	.....	.....	.....	.....	.....	1,845,308
Diesel and gas oil	.....	.....	92,650	13,236	449,739	867,233
Gasoline	77,580	11,083	.....	.....	1,730,205	1,583,291
Coastwise—						
Crude oil	485,908	69,415	165,621	23,660	2,339,964	5,219,537
Fuel oil	355,569	50,796	264,344	37,763	3,048,833	2,751,065
Diesel and gas oil	10,610	1,516	9,955	1,422	191,288	45,932
Gasoline	250,783	35,826	293,376	41,911	2,030,637	1,598,167
Kerosene	.....	.....	1,565	224	14,615	35,738
Tops	.....	.....	46,992	6,713	77,492	.....
Exports—						
Crude oil	.....	.....	60,307	8,615	383,308	727,007
Fuel oil	298,937	42,705	544,911	77,844	4,230,043	5,367,680
Diesel and gas oil	.....	.....	39,797	5,685	453,081	144,767
Gasoline	154,427	22,061	.....	.....	773,953	302,476
Kerosene	90,186	12,884	49,052	7,007	735,128	426,632

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	97,609	13,944	.....	.....	265,304	251,458
Gasoline	176,105	25,158	.....	.....	330,343	507,916
Lubricants	.....	.....	.....	.....	69,854	58,110
Coastwise—						
Fuel oil	128,886	18,414	65,931	9,419	683,122	1,037,257
Diesel and gas oil	50,033	7,148	.....	.....	68,442	134,308
Gasoline	32,188	4,598	108,731	15,533	519,249	955,743
Kerosene	.....	.....	.....	.....	37,248	25,886
Exports—						
Crude oil	25,029	3,576	.....	.....	25,029	.....
Fuel oil	10,950	1,564	.....	.....	448,256	295,851
Diesel and gas oil	10,400	1,486	.....	.....	10,400	.....
Gasoline	117,946	16,849	77,623	11,089	778,016	858,046
Kerosene	.....	.....	61,029	8,718	141,420	209,304
Lubricants	.....	.....	.....	.....	.....	9,120

part of the current month. Seal Beach will probably not cause any unusual disturbance, although future development work may result in another appreciable increase in field production before the year draws to a close. The effect which this new Bonner zone will have on daily production depends upon its productivity and while there are only a limited number of projects which can be deepened to this lower strata it seems a foregone conclusion that every available producer will be deepened immediately if favorable production is secured.

Town Lot Difficulties

The town lot area practically precludes the reaching of any agreement restricting production as in competitive drilling conditions of this kind the time element is a very important factor, affecting as it does the total ultimate recovery and consequently in many cases the difference between profit and loss. The older section of the Seal Beach Field will probably be held in reserve and future development work delayed until a more opportune time. The Standard, Associated and Marland, which companies control the entire productive acreage in the old field, are vitally interested in future production since an excess means lower prices and they will therefore limit and regulate both production and development. The Associated recompleted No. 3 Hellman during the early part of the past week and this project, which was redrilled and deepened from 4,455 to 4,905 feet, was returned to production flowing 1,250 bbls. of 24.9 gravity oil daily.

Santa Fe Springs, like the Alamitos Heights section of the Seal Beach Field, may also bear watching during the next 60 days as the several deep tests being drilled in search of another horizon below the Meyer zone may result in another intensive competitive deepening campaign if present exploration work proves successful. The existence of another zone below the Meyer horizon at Santa Fe Springs is merely conjectural at the present time although there have been unconfirmed rumors for the past two or three days that one of the projects in question has encountered favorable indications. If Santa Fe Springs can be correlated with Long Beach there is ample geological evidence to justify the existence of another zone below the Meyer and Bell horizons in the former field, but this, of course, is purely theoretical and will not be definitely determined until actually tested out by the bit.

Drilling projects at Long Beach are beginning to bunch up and if normal progress is recorded during the current month completions in the next couple of weeks should average about one every 24 hours. Field production consequently should register a definite upward trend from now until the 1928 peak is attained, which, incidentally, is variously estimated at from 150,000 to 175,000 bbls. per day. The anticipated increase in daily production of the Long Beach Field is of special interest in view of the concerted movement under way to eliminate excess production of heavy crude and natural gas as the contemplated shutin is expected to more than offset the increased production at Long Beach resulting from deep-sand exploitation.

Long Beach

Deep-sand exploitation in the Long Beach Field resulted in the completion of three new wells with an aggregate initial daily production of 10,105 bbls. during the past seven-day period and with 41 projects either already in the pay or standing cemented just above the lower zone, it is quite probable that this remarkable field will yield at least 20 or 25 new wells during the month of March. The completion of these new wells in the lower horizon will naturally result in an appreciable increase in daily production during the coming month, although geological departments of the major companies expect the 1928 peak to be reached some time during May. Long Beach, one of the most prolific fields ever opened up in California, has produced a total of over 265,000,000 bbls. of crude since discovery by the Shell back in 1921 and this district will probably show a total ultimate recovery of well in excess of 400,000,000 bbls.

The Richfield Oil Co. has acquired the Acme property of the Graham & Loftus Oil Co., comprising 2½ acres in the center of the Long Beach Field, and in keeping with the aggressive policy of the Richfield interests development work on the new acreage will be pushed ahead as quickly as possible in order to participate in the maximum flush production of the lower horizon. There are three shallow wells on the Acme lease taken over by the Richfield, the production of which approximates 550 bbls. per day. Graham & Loftus spudded in three additional projected deep sand wells on this property a short time ago and the Richfield's production department, under the personal direction of Vice President John McKeon and W. E. Dunlap, will rush these projects into completion The Richfield, incidentally, has just completed No. 3 Fry flowing 3,740 bbls. of clean 29.2 gravity oil and 2,000,000 feet of wet gas daily from 6,402 feet and this well will be followed into production in the very near future by No. 2 Freeman and No. 4 Green. This well, a former upper zone producer, was originally finished in March, 1926, doing 700 bbls. daily but gradually declined and was pumping 60 bbls. per day on December 20 of last year when it was taken off the beam and carried down to its present depth. The Union Oil Co.'s No. 13 Long Beach Community, which failed to secure substantial production when given a preliminary production test a month or so ago, has been redrilled and deepened to 6,420 feet and, from present indications, fairly good production may be expected. The Union is running six other strings of tools in this field at the present time.

The California Petroleum, which has just finished No. 2 on Griswold lease No. 1 doing 1,445 bbls. of 29.4 gravity oil and 1,250,000 feet of wet gas daily from the 6,261-foot level, is running 16 strings of tools in the Long Beach Field at the present time and unless some unforeseen delay occurs five additional wells should be completed within the next 30 days. The California Petroleum's No 2 Griswold, which blew in prematurely, is an offset to J. J. Doyle's No. 2, which is still flowing 1,425 bbls. daily, notwithstanding the fact that it was completed last October. The Exeter Oil Co., under the direction of J. A. Cowan, formerly chief of the gas division of the Union Oil Co., has finally decided to participate in deep sand exploitation after studying the situation for over 60 days. The Rio Grande Oil Co., which recently finished No. 1 Roberts in Howard County, Texas, as a substantial producer, will follow up this success by finishing three new wells at Long Beach within the next 30 days. L. T. Edwards has just brought in his No. 3 Brayton, a new well doing 2,920 bbls. of 28.9 gravity oil and 2,000,000 feet of exceptionally wet gas daily from the 6,408-foot level and the well is building up in good shape with a possibility that it may go over the 3,000-bbl. mark within the next 24 hours.

Shell Company Active

The Shell Oil Co, the largest single operator in the Long Beach Field at the present time with 25 strings of tools to its credit, should begin chalking up a number of new completions within the next 30 days and this group should be followed by additional completions from time to time thereafter. The Shell has only listed a relatively few deep-sand completions in this field during the past 90 days but this deficit will be more than made up within the next four or five weeks. On the Alamitos lease the company should finish six new wells within the next 30 days and this list will be augmented by additional completions on the Binkley, Cherry Hill, Cresson, Hutton, Martin, Nesa and Patton Wilson properties along about the same time.

The Superior Oil Co. is not experiencing the success in its deep-sand exploitation at Long Beach which has characterized the company's previous operations in other areas. The Britton, Crew, Miller and Swaffield leases have all proven disappointing for some reason or other and unless the company succeeds in finishing a couple of good wells in the very near future it will probably go into the red. No. 1 Britton ran into bottom water at 6,004 feet and a water witch showed it advisable to plug back to 5,860 feet, which has accordingly been done. No. 3 on the same lease looked fairly promising during the course of work but it has shown absolutely no kick whatever when given a chance to produce from the 5,660-foot level. The failure to show commercial production has resulted in the resumption of drilling. On the Crew lease No. 2-A has declined to 315 bbls. per day and if No. 3, which will be given an early test in the deep sand, results in a large well, No. 2-A will be taken off production and carried down. On the Miller property, the Superior had the misfortune to develop a fishing job at 5,930 feet, the drill pipe having froze at 5,700 feet. No. 2-A Swaffield has failed to hold up and the present production, 140 bbls. of clean 30.1 gravity oil daily from the 6,136-foot level, is rather discouraging to say the least. The Bolsa Chica has just spudded in No. 5 Mutual and this new well, which is a little north and east of No. 4, a recent completion which is still flowing 2,250 bbls. of clean 29.6 gravity oil, will probably be finished along about the middle of May.

Huntington Beach

Two new wells were chalked up in the town lot area of the Huntington Beach Field during the past week, one of which came in under a natural flow. This was Paul & Collier's No. 1 Stevens, which registered an initial production of 375 bbls. daily from 3,959 feet, the hole having been finished with a 6¼-inch liner carrying 300 feet of perforated. These two operators immediately started additional work and rigs are in course of construction for No. 2 Reeder and No. 3 Dunning. The Duncan Drilling Co. successfully finished No. 2 Huntington in the shallow zone at 2,230 feet and this new well showed an initial pumping of 60 bbls. of 15.1 gravity oil daily. J. E. Bundy has a rig going up for a new well in Block 412 and actual spud should be made within the next two weeks. Bundy purchased the Methodist Camp Grounds in the town lot area several months ago and turned over a lease to Sy Wicker who pulled out after drilling a 4,000-foot duster. The new well to be drilled by Bundy is located at the other extremity of the former camp grounds which consists of four full city blocks, and if the present attempt to secure production is not successful the property will be subdivided.

J. A. Brower has recemented his No. 1 Traveller for the fourth time and this well, which blew out several weeks ago and seemed assured of production, is still in an unsatisfactory condition. The well in question is located in the extreme southeastern part of the Huntington Beach Field and although it flowed for a few hours at the rate of 700 bbls. per day, Brower has been unable to get any kind of a favorable reaction since the initial blowout. Dual & Jones are spudding in a new well about a half mile northeast of a duster drilled at the Five Points by E. J. Miley several months ago and while this area has possibilities many are inclined to believe that previous dusters have proven the district to be unproductive.

Santa Fe Springs

The conservation movement under way in California at the present time apparently means very little to several operators in the Santa Fe Springs Field and if these selfish individuals succeed

(Continued on Page 113)

MORE AND BETTER COMPLETIONS REPORTED IN THE EASTERN FIELDS

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Mar. 5.—Despite unfavorable weather conditions, the Eastern fields made a fairly good showing during the past week. More wells were completed and a few above the average size. During the past month fewer wells were completed, but there was a marked increase in new production in the Southeast Ohio fields, where one well had an initial production of 506 bbls., giving the deep-sand territory the distinction of having the largest well completed in the East in several years. It is these occasional good producers that stimulate the search for others.

Best Producers for Week

Southeast Ohio completed the best producers. In Lot 13, Ambridge Township, Guernsey County, the Preston Oil Co. completed in the Niagara lime a test on the P. A. Curran farm. It is a natural producer and placed 75 bbls. to its credit the first 24 hours.

In Section 14, Hanover Township, Licking County, the Hope Construction & Refining Co. drilled a test on the W. L. Prout farm through the Clinton sand. It produced 40 bbls. the first 24 hours after shot.

In the SE of Section 19, Harrison Township, Perry County, the Wilson Oil & Gas Co. completed a test on the George Wilson farm. It came in a gasser in the Clinton sand at a total depth of 3,600 feet and is a gasser good for 3,000,000 feet.

In the SW of Section 24, Pike Township, Coshocton County, the Leonard Oil & Gas Co. completed and shot in the Clinton sand a second test on the W. D. Powers farm. It produced 165 bbls. the first 24 hours. In the SW of Section 2, Monroe Township, same county, the East Ohio Gas Co.'s test on the Peter Shellhorn farm is a gasser in the Clinton sand good for 1,500,000 feet. In Section 21, Knox Township, Columbiana County, Dr. W. G. McLaughlin and others have a 3-bbl. pumper in the Berea grit at No. 6 on the Hoffman heirs' farm.

Athens County

One-half mile south of Sharpsburg, Section 29, Berne Township, Athens County, C. O. Thomas has completed in the stray sand below the Berea grit a test on the Burgess Hopkins farm. It is a gasser good for 250,000 feet. In the same township and section, the same party completed a second test on the same farm and is a fair gasser. One-half mile west of Sharpsburg, in Section 36, same township and county, the Ohio Fuel Supply Co.'s test on the L. J. Elliott farm is a light gasser in the sand formation. In Section 30, same township, the Ohio Fuel Supply Co.'s second test on the Diamond Coal Co.'s property is a gasser good for 280,000 feet. The same company's first test on this property is a gasser good for 275,000 feet.

In SE Section 19, Harrison Township, Perry County, the Wilson Oil Co. drilled in its No. 1 on the George Wilson farm and has a gasser good for 3,000,000 feet. The Hope Construction & Refining Co. completed its No. 2 on the C. Blair farm, NW Section 12, Pike Township, Coshocton County, to the Clinton at 3,254 feet and the well is showing for 5 bbls. natural with the shot having been in the hole for four days, unexploded.

West Virginia

While the West Virginia fields had no large completions, some were better than the average. The average size of the producing wells in these fields last month was a little less than 11 bbls. On McFarlan Creek, Murphy district, Ritchie County, the South Penn Oil Co. completed in the Maxon sand No. 12 on the Anna M. Wilson farm. It is good for 30 bbls. a day. On Reedy Creek, Reedy district, Roane County, the Heck Oil Co.'s No. 11 on the J. W. Conley farm, com-

(Continued on Page 113)

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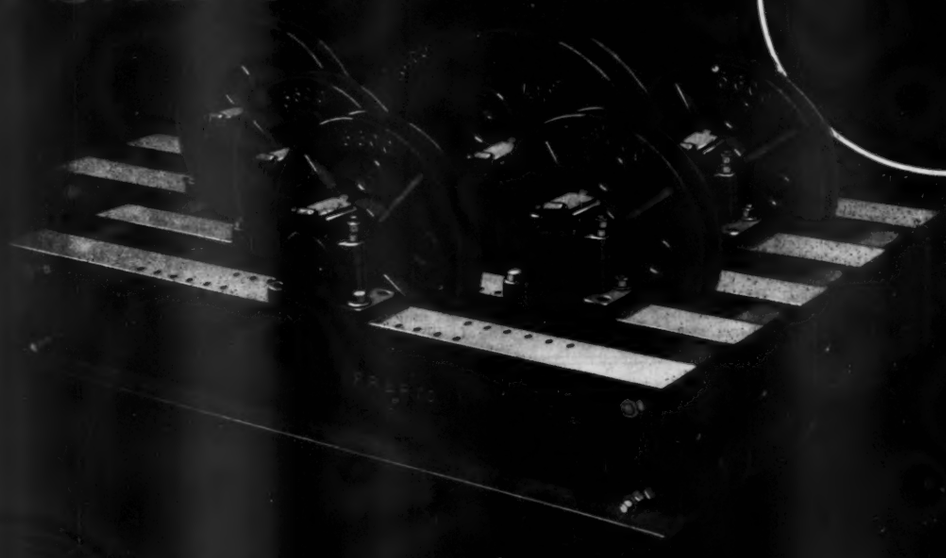

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Michigan Is Encouraged by Muskegon

Completion of Second Good Producer Taken as Indication of Promising Field. Central West Hampered by Weather

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Mar. 5.—Operators are feeling better in the new Muskegon Field, Michigan, by the bringing in of the second good producer, making two good wells out of three attempts, which is a very good average for virgin territory, and it looks as though there was an important oil field in the making. The new well is owned by the Muskegon Oil Corp., the discoverers of the field, and is No. 1 on the Fred W. Figge farm, about 800 feet west of the company's No. 1 on the Reeths property. The Travers sand was struck at 1,661 feet and the drill had only penetrated the sand a few feet when the well made an excellent showing and for the first 15 hours produced 105 bbls., and the following 24 hours put 178 bbls. in tanks, making a total of 283 bbls. for a 39-hour run. At the same time the original oil well on the Reeth's property was maintaining its production between 60 and 64 bbls. in 24 hours. Wells of the caliber of these two producers are enough to encourage development work, and it certainly has, for great activity is being displayed among the local companies as well as outsiders that have secured a foothold close to production.

The drilling outfit from the new well is being moved to the Albert Heinz property, a few hundred feet west of the new producer, and the outfit from the No. 1 Reeths lease will be moved to another of the Heinz properties to offset wells drilling by the Johnson Oil & Refining Co. on the Harley Smith property and that drilling by Charles P. Brant and others, also in Section 4, Muskegon Township.

Approximately a tank of crude is being shipped daily from the field and both producing wells are more than holding their own, as the discovery well flowed 62 bbls. and the Figge well went as high as 184 bbls. in 24 hours.

It is announced that to take care of the added flow of oil and to make preparations to handle any possible amount which may be produced in the new field, the Dixie Oil Co. will lay a new 4-inch main from the wells to the Pere Marquette Railroad tracks, nearly a mile west, to the loading rack of the Dixie Co. In case other good producers are found within a short space of time, the Dixie Co. will erect storage of from 10,000 to 20,000 bbls. capacity to assure that the field will not be troubled for storage. In case there should be a production of from 2,000 to 3,000 bbls. daily, this storage will be able to take care of the crude found in the field at most any time, as daily shipments of crude are made from the loading rack.

Much interest is shown in the further development of the promising field. Two wells in particular are being closely watched, although they are not anywhere close to the producing Travers sand yet. One is the Johnson Oil & Refining Co.'s No. 1 on the Joseph Cihak property, a mile east of the discovery well, and in Section 3, Muskegon Township, and the Citizens Petroleum Co.'s No. 1 on the Becker Brothers property, Section 4. There is also another very interesting test going down, the Bull Dog Oil & Gas Co.'s No. 1 on the Charles I. Giles property, Section 6, which is being drilled by rotary tools and may reach the producing sand ahead of the standard tools on the other two wells. The drilling well on the Becker Brothers property is about a half mile directly north of the two producing wells. The extent of the field north and south is yet unknown, although one well, that of Becker Brothers, is drilling on the north. None is under way to the south on the Muskegon River flats, but it is said a well is to be started shortly on the Torrent property not far from the Pere Marquette bridge across the Muskegon River.

The Joliet-Morris Development Co., a subsidiary of the Muskegon Oil Corp., will start at once the drilling of a test on the John B. Nichols property, known as the Fox farm, northeast of the railroad bridge. The Maire-Caswell Co.'s well on the Margaret Figge property, Section 9, is going along nicely and has set 10-inch pipe at close around a depth of 255 feet.

A new location is reported to have been staked on the south side of the Muskegon River in the northwest quarter of Section 14, Muskegon Township, near the Jackson Street Road. This will be the first attempt to find oil in that area since the Muskegon Oil Corp.'s first attempt there proved a dry hole, the dry hole being in Section 28, on the old Grand Rapids Road, near Getty Avenue.

The Ottawa Development Co., according to advice, has made a location for a test near the town of Rusk, in the southern part of Ottawa County.

Lima Field

In the old Lima Field of northwestern Ohio only three wells were reported, one being a small producer and two dry holes. In Mississinewa Township, Darke County, in the southern part of the field, J. G. Hoffman's second test in the southwest corner of the George Lawrence farm, in the northeast quarter of Section 16, pumped 10 bbls. Top of Trenton was at 1,245 feet and drilled 48 feet in the sand to a total depth of 1,293 feet. Lee A. Watson is drilling a test on the Marion Murphy farm, Section 5, Wayne Township, same county.

In Laramie Township, Shelby County, the Ohio Oil Corp. is drilling a test on the M. and R. A. Dapore farm, Section 2.

In Benton Township, Paulding County, J. W. McIntosh has abandoned Nos. 1 and 2 on the Brady Brothers 50 acres, Section 8.

Syl Metzger drilled a dry hole in a test, 650 feet from the north line and 250 from the west line of the Otto Kaverman farm, in the southwest quarter of Section 25, Washington Township, Van Wert County. Sand was topped at 1,226 feet and drilled 28 feet in the sand. This well was reported to be in Allen County.

In Bath Township, Allen County, H. F. Kelly and others are drilling No. 3 on the J. W. Miller farm, Section 11, and W. W. Bolz is starting a test on the Steve Zelno farm, in Section 14, same township. In American Township, same county, the Ohio Oil Co. abandoned Nos. 2, 4, 5 and 6, B. Miller farm, Section 16, and Nos. 2, 3, 4, 5, 6, 7 and 8 George Knittle farm, Section 17.

The Ohio Oil Co. abandoned Nos. 1, 2, 3 and 5 on the Jacob Schwab farm, Section 9, Portage Township, Hancock County. John Briggs is starting a well on his farm, in Delaware Township, same county, along the Lincoln Highway, 2 miles north and 3 miles west of the town of Forest.

In Wood County, Center Township, near Bowling Green, Arthur Hanawalt is drilling a test on his own farm, Section 20. Charles F. Zeising and others are drilling a test on the Jim Briggs farm, Section 17, Troy Township. Lee Rouse found a dry hole at a test 660 feet from the south and west lines of the A. Sanglier farm, in the northeast quarter of Section 15, Plain Township, near Bowling Green. Top of sand was found at 1,214 feet and drilled 300 feet in the sand. Kundtz & Hulse abandoned No. 1 on the H. A. Goodenough farm, Section 34, same township.

Indiana Field

Weather conditions prohibit development work in the southwestern part of Indiana, owing to extreme cold weather and deep snow, hence completions were scarce during the past week or so. When the snow does melt, it will bring high waters in that part of the State which will make it almost impossible to do much in the way of starting new drilling operations until late in the spring.

In Pike County, Washington Township, G. L. Clarks' test, 220 feet from the south line and 660 from the east line of the Preston heirs farm, in Lot 14, went to a total depth of 1,152 feet, getting a duster. William Bell and others are drilling No. 1 on the Collie Snyder farm, Lot 1, and Joe S. Young, Jr., and others abandoned No. 1 on the Edward Phillips farm, Lot M.D. 123, same township.

Quietude prevails in the Daviess County area, of which Washington is the county seat and which has been one of the active spots during the past couple years. Many of the former operators there have invaded the extreme southern part of the State and also across the Ohio River in Kentucky.

In Delaware County, in the old Trenton Rock area of the State, the J. E. Houke Oil Co. has abandoned Nos. 1, 2, 3, 4, 5, 6 and 8 on the J. W. Goings farm, Section 9, Delaware Township, and Nos. 1 and 2 on the J. E. Goings farm, same section.

Two small gas wells are reported from Maumee Township, Allen County, one on the Garber farm, Section 21, and the other on the Reckway farm, Section 10.

Acreage is being leased in large blocks around Troy, Ind., by Kentucky operators who are becoming convinced there are possibilites throughout southern Indiana and are going to test out many locations.

Illinois Field

Four completions are reported from various parts of Illinois, none of which is of much value. In Johnson Township, Clark County, W. C. McBride, Inc., drilled in a second test, 600 feet from the north line and 200 from the east line of the R. E. Deverick farm, in the northwest quarter of Section 1, the well being good for 2 bbls., at a depth of 570 feet. Same parties are drilling a second test on the J. Connelly farm, Section 2.

The Ohio Oil Co. is drilling No. 3 on the Dora A. Hipshire No. 2 farm, Sec-

(Continued on Page 109)

SEMIWILDCAT MAKING 100 BARRELS EXTENDS ROBY, KENTUCKY, POOL

By Whit
Staff Correspondent, Kentucky-Tennessee

WHITESVILLE, Ky., Mar. 3.—Completed work reported from the Kentucky Field during the past several days was confined to Ohio and Daviess Counties, as weather conditions were such little could be done. Operators are waiting for sunshine, as many leases were taken on short drilling terms, or a heavy rental which on some of the big farms would amount to almost as much as a well would cost. Adding the bonus prices paid, then a rental, makes a lease come expensive, especially in parts of Kentucky where a location away from a good producer may develop a duster. The wells throughout Daviess and Ohio Counties are holding up far above expectations and there are still chances for opening up other pools along the Rough River fault. Some are of opinion that on the south side of this fault larger wells may be encountered, but that remains to be seen, for big producers are found on the north side for many miles east and west.

A test on the Mattingley farm, in Daviess County, almost west of Pellville and about a mile north of the small village of St. Lawrence, and almost a wildcat, is reported around 100 bbls., and adds much good looking territory to the north of the Roby Pool which was opened about a year ago by the Leeper Oil Co.

Week's Work

A summary of the week's work in the Kentucky fields shows 11 completions, 7 producers with an initial production of 596 bbls., and 4 dry holes. Compared with the previous week there were 12 less completions, 8 less producers, 261 bbls. more new production, 3 less dry holes and 1 less gas well. The wells were distributed by counties and districts as follows:

County—	Comp.	Oil Wells	Prod.	Dry	Gas
Ohio	7	5	436	2	0
Daviess	4	2	160	2	0
Total	11	7	596	4	0
Last week	23	15	335	7	1
Difference	12	8	261	3	1

Ohio County

Southwest of Taffey and not far from Sunnydale, James C. Ellis drilled a test on the C. Hoover farm, estimated at 200 bbls. or better, initially.

Cumberland Petroleum Co. and others' No. 5, on the Bob Hamilton farm, near Mount Moriah Church and southeast of the heart of the Ambrose Pool, is said to show for 200 bbls. or better, initially. A large central power plant has been set on this lease which contains close to 400 acres and plenty of space for at least 50 wells.

Near Bells Run, northwest of the Ambrose Pool proper, Garrison and Evans' test on the Don Mitchell farm, is reported good for 5 bbls. This is also a large farm and just at the south edge of Bells Run.

In the Kelly Pool, north of the Midkiff Pool, J. M. Meredith's No. 1, on the Kelly heirs' farm, produced an initial of 16 bbls.

The second test of the Ohio Oil Co., on the Arch Rhodes farm, came in a dry hole.

The Deanfield Oil Co.'s test, on the A. F. Belamy farm near Deanfield, proved a duster.

Daviess County

Hupp, Duff and others are reported to have struck what looks like a 100-bbl. producer in a wildcat on the Mattingley farm, a mile northeast of the Roby Pool and about the same distance northeast of the small hamlet of St. Lawrence, and in advance north of production and makes a large area of territory between look inviting. In this well 27 feet of sand was penetrated.

The Hayden Pool has another producer, L. C. Young and others' second attempt on the W. G. Hayden farm, a couple of miles north of the hamlet of Maxwell and in the southeast corner of Daviess County where it corners with Ohio and McLean Counties. The new well is not so large as the original well on the same farm, but reported showing for about 60 bbls. In No. 1 on this farm, much trouble has been experienced from a shot that bridged the hole and

(Continued on Page 109)

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Measuring the Depth of Deep Wells

From Practical Standpoint, an Absolutely Correct Measurement of Depths of a Deep Well Is an Impossibility

By C. E. Van Orstrand*

To the casual observer, the measurement of the depths of deep wells is encumbered with no particular difficulties, but to the student of precise measurements, the problem is difficult and even more than difficult—it is indeterminate. From a practical standpoint therefore, an absolutely correct measurement of the depths of a deep well is an impossibility.

Inaccuracies of Observation

Let us consider the various obstacles that prevent the precise measurement of the depth of a deep well.

Thermal expansion.—The error due to thermal expansion is quite small and is generally neglected. This procedure is justifiable for certain alloys such as invar, but for ordinary steel, the expansion amounts roughly to 0.0067 foot per degree Fahrenheit per 1,000 feet of length. Assuming an average increase in temperature of 50 degrees Fahrenheit from the top to the bottom of the well, the resulting error is 0.33 foot per 1,000 feet of total depth.

Deviation from the vertical.—Obviously, deviations from the vertical introduce errors in our measurements for which precise corrections cannot be applied. An accurate survey of the well showing its position in space of three dimensions would provide the data that are needed in making the necessary corrections, but, observations of this kind cannot be made with a high degree of precision.

Sounding bottom.—To consider further the inaccuracies involved in the correct measurement of depth, let us refer to the sketch, Figure 1, which represents a ver-

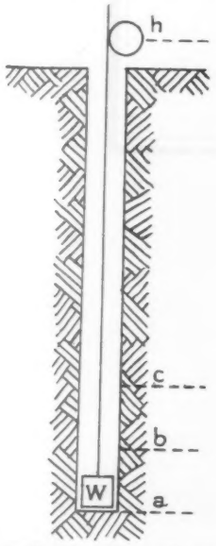

Figure 1—Showing cable and measuring wheel.

tical well with a perfect measuring wheel at the top, that is, the wheel accurately records the length of line passing the point of contact of the wheel and the cable. Let us now assume that the weight W is resting on the bottom of the well and that the "pick up" is obtained in the usual maner. The instant that the weight W hangs free, an impulse or elastic wave is propagated upwards with a velocity of about 5,000 feet per second. Hence in a well which has reached a depth of 5,000 feet the elastic wave reaches the hand of the driller after the lapse of one second—the weight W in the meantime having moved through a distance ab depending on the variable velocity with which the cable is moving upwards. To correct this error it is necessary to know the velocity of sound in a steel cable and also the average velocity of the cable as it moves upwards from the time the weight W leaves bottom until the elastic impulse is transmitted to the hand of the observer. Neither of these quantities is capable of very accurate determination, and as they are generally ignored altogether, the resulting error in a well which has reached a depth of something like 1 mile, may amount to 2 or more feet.

Sliding Friction

It is conceivable that the depth of a well could be determined from the time required for a sound wave to pass from the top to the bottom of the well and return—the wave being propagated either in the casing or in the fluid within the casing. On account of temperature changes, variations in density, and possibly other sources of error, the method does not seem to offer any immediate promise of success. Barring this possibility, and the possibility of utilizing other kinds of waves for the purpose, the most important of the remaining methods of measuring great depths are dependent on the lowering of a weight to the bottom of the well, a procedure which involves more or less sliding friction, even in the case of a vertical well. Referring to Figure 1, it is evident that as a result of sliding friction, the measuring wheel at the top of the well records a depth which is too small when the line is lowered into the well, and conversely, the recorded depth is too great when the line is removed from the well. Assuming that the frictional effects in the two cases are equal and opposite, the mean of the two readings thus obtained is the correct measured length from the point b determined by the "pick up," but the determination of this point is in itself encumbered with two errors. One of these errors, as just explained, is the error involved in sounding bottom, the other depends on the extent of the adhesion of the line to the casing. Again referring to Figure 1, let the point b represent the position of the weight W at the instant the "pick up" is obtained. The length ab then represents the distance traversed by the weight W while the elastic wave is being transmitted from a to h. The position of b falls between an upper and a lower limit, the former corresponding to the case when the line hangs free throughout the distance ah while the lower limit corresponds to the case of maximum friction, or complete adhesion of the cable to the casing. Assuming maximum or partial adhesion, let the cable be instantly released from the casing, then, the weight W moves from b to c, but only that portion of bc which is in the ratio of the distance from the sand line reel to h to the total distance from the sand line reel to b is recorded by the measuring wheel. Hence we have a combination of fortuitous factors depending on the sequence, duration and intensity of the adhesive forces between the cable and the casing. Evidently, a theoretical correction other than that based on probability is an impossibility.

I have no information as to the magnitude of the maximum errors resulting from sliding friction when the oil well cables are used for measuring lines. With a No. 20 polished steel piano wire carrying a load of 7 pounds, the maximum difference is of the order of magnitude of 0.5 foot per 1,000 feet of measured length, the highest value for the depth being recorded, of course, when the line is removed from the well. Some wells are so nearly vertical that the line does not come in contact with the casing for depths of something like 1,000 feet. Under these conditions, the depths recorded by the hand-operated machine used in making temperature tests were identical regardless of the direction of motion of the line.

Errors of Different Methods

The preceding inaccuracies are more or less common to all methods of deep well measurement which are dependent on lowering a material object to the bottom of the well. We come now to consider the errors inherent in the individual methods themselves.

Measurements on Casing and Drill Pipe.—One of the simplest methods of determining the depth of a well consists in measuring with a steel tape each casing length as it rests in a horizontal position just before being placed in the well. When a rotary outfit is used the measurements are made in a similar manner on the drill pipe while it is standing in an approximately vertical position.

As the amount of stretch or contraction to which the casing or drill pipe is subjected is not known, a very considerable element of uncertainty is evidently introduced in these measurements.

Steel Tape.—With a frictionless tape, the true depth of a vertical well is equal to the observed depth corrected (1) for the temperature of the well and (2) for the tension produced by a total load equal to the attached weight (W) plus one-half the weight of the tape. When the tape adheres to the casing, a factor dependent on friction is introduced for

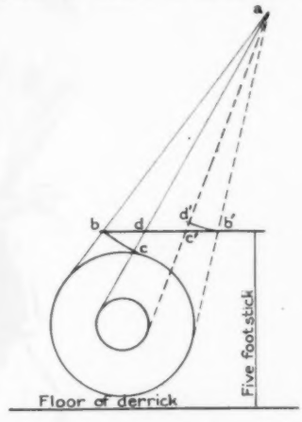

Figure 2—Showing reel and sand line.

which no correction can be made, for obviously, as a result of friction, there is no means of determining the tension in the line as it varies from point to point along its entire length. Here, again, from the standpoint of measurement with a high degree of precision, our problem is indeterminate. A tape that possesses a low coefficient of thermal expansion and a modulus of elasticity such that the tape is practically unyielding for ordinary loads gives the nearest approach to the true depth of a well that can be obtained by this method.

The flat surface of a tape adheres with very considerable force to the wall of the casing. This intense adhesive force is frequently attributed to magnetism in the casing, but magnetism is a minor factor, as may be readily shown by using a wire instead of a tape. In my investigations of deep earth temperatures thermometers have been lowered on a No. 20 polished steel piano wire by means of a hand-operated machine to depths of more than 4,000 feet without experiencing any particular difficulty. Some wells, however, are crooked and dirty, and it is oftentimes impossible under these circumstances to reach great depths, but in no instance could the thermometers be lowered on a metal tape by means of a hand-operated machine to depths of more than a few hundred feet. Considered from the standpoint of eliminating friction, a heavy wire coiled once or twice around a drum to which a recording device is attached would be superior to a metal tape.

Stringing Over the Derrick

As previously explained, for wells of considerable depth, "casing measure" or "drill pipe measure" is oftentimes used. Another method in frequent use is the one known in the oil fields as "stringing over the derrick." In this method a string is attached to the sand line just

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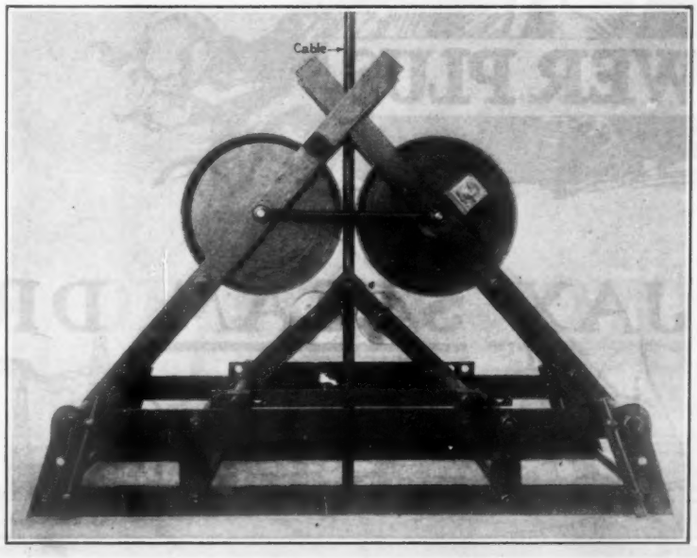

Figure 3—Side view of depth recorder.

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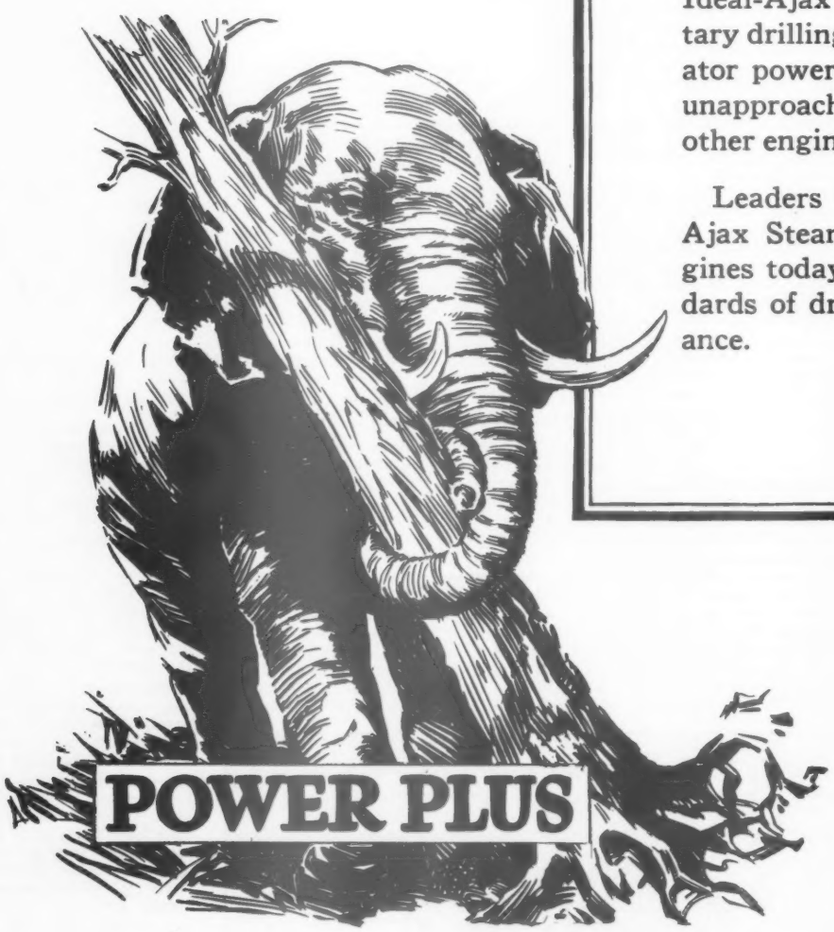

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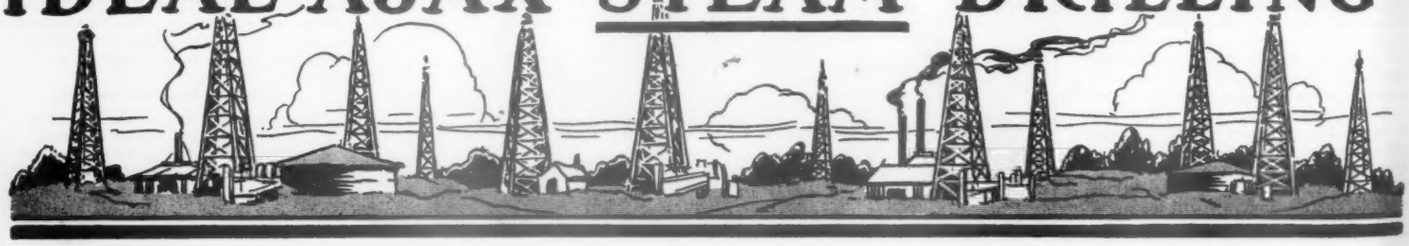

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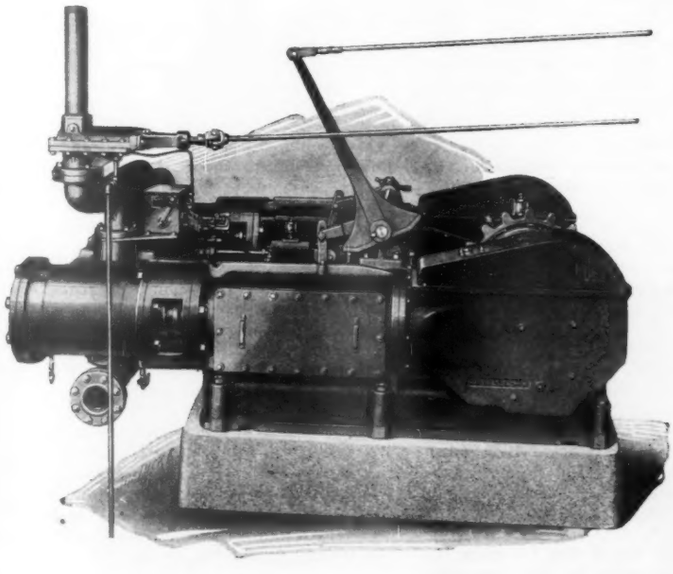

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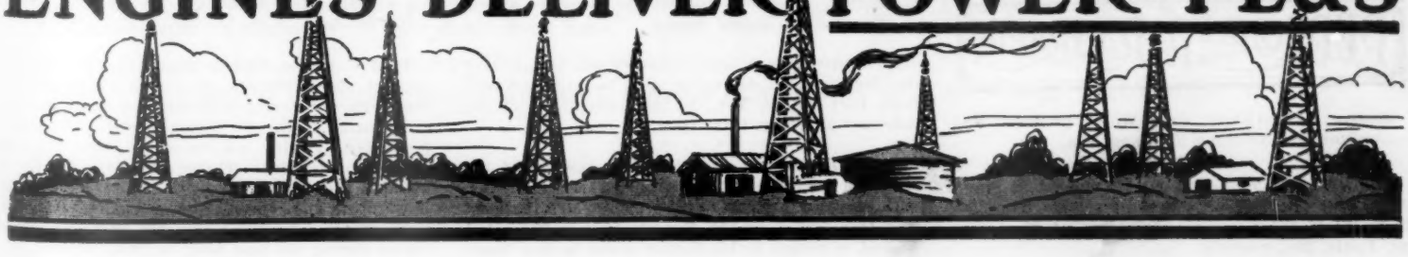

MEN KNOWN IN OILDOM

Louis B. O'Neil

Louis B. (Tip) O'Neil, vice president of the California Petroleum Corporation and chief of the land department of that company, is one of the best-liked executives in the oil industry. He and his brother, John O'Neil, were among the early pioneers in the Kevin-Sunburst Field of Montana and subsequently organized the International Refining Company, which erected a 1,000-barrel topping plant at Sunburst in 1924. The International company operated this topping plant for some time but it was subsequently replaced by a complete refining unit, the crude capacity of which approximated 17,000 barrels per day. The International company's refined products found a ready market in the Rocky Mountain area and, with the consummation of a satisfactory fuel oil contract with the Great Northern Railroad it became necessary to augment existing refinery equipment and enlarge distributing facilities on several occasions. The success which the O'Neil brothers achieved in the producing and refining industry in Montana attracted the attention of California Petroleum Corporation officials in their expansion program two years ago with the result that the latter acquired their entire holdings for a consideration of approximately $5,000,000. As a result of this transaction L. B. O'Neil became vice president of California Petroleum Corporation and as president of the International Refining Company has been in entire charge of the former's operations in Montana since the latter part of 1926.

L. B. or "Tip" O'Neil, as he is affectionately called, has a wide acquaintance in Montana oil circles, having been president of the Montana Oil and Gas Association during 1926. The O'Neil brothers are sons of P. H. O'Neil of Los Angeles, one of the largest stockholders of California Petroleum Corporation, who has been affiliated with that concern for a number of years. The senior O'Neil was engaged extensively in the livestock business in North Dakota for a long period and was at one time tendered a position in President Coolidge's cabinet but ill health prevented the acceptance of this offer.

PERSONAL PARAGRAPHS

George B. McCamey, Fort Worth producer and contractor, is sojourning in Miami, Fla.

* * *

F. L. Finch, oil operator of Tulsa, Okla., and Miss Gertrude Harper, assistant secretary of the Twin State Oil Company, Tulsa, were married in St. Louis, Mo., recently.

Paul Tees, Mitchell County, Texas, operator, was a business visitor in Fort Worth, Tex., last week.

* * *

H. J. Owen, of the Ohio Oil Company, has been transferred from Owensboro, Ky., to Marshall, Ill.

* * *

Frederick G. Clapp has returned to Teheran after a reconnaissance through the northern provinces of Persia.

* * *

R. J. Stipek, of the Gulf Production Company, has been transferred from Amarillo, Tex., to Fort Stockton, Tex.

* * *

B. C. Gibson, of the Shell Oil Company of California, has been transferred from Salem, Ore., to Tacoma, Wash.

* * *

M. F. Waters, general manager of the Smith Separator Company of Tulsa, Okla., has returned from a trip to St. Louis, Mo.

* * *

Tom Carridon, vice president, First National Bank, Iowa Park, Tex., is in West Texas on business pertaining to oil development.

* * *

James E. Dunn, of the Gibson Oil Company, has returned to his offices in Amarillo, Tex., following a business trip to Fort Worth, Tex.

* * *

Guy Mosley, of the White Eagle Oil & Refining Company, Tulsa, Okla., was a recent visitor in the Ranger district and in Fort Worth, Tex.

* * *

L. S. Allen, of Tulsa, Okla., district, sales manager of the Central Alloy Steel Corporation, has returned from a trip to Louisiana and Arkansas.

* * *

Fred McCord, of the Ohio Oil Company, was reported in Craig, Colo., the past week checking up on oil developments in northwestern Colorado.

* * *

Ed Sutherland, drilling in the Turner Valley Field, is in a hospital at Calgary, suffering from a broken leg, as the result of an accident while at work.

* * *

W. A. Clark, Jr., geologist for the Delmar Oil Company, at San Angelo, Tex., left San Angelo for Wichita Falls, Tex., to undergo an operation for appendicitis.

* * *

John M. Keating, of the land and legal department of the Producers & Refiners Corporation, at Denver, Colo., has resigned to enter the practice of law in Denver.

* * *

J. R. Whalen, land man for the Ohio Oil Company, with headquarters in Amory, Miss., for the past year, was in West Palm Beach, Fla., recently on company business.

* * *

W. R. Capron, of the Sinclair Crude Oil Purchasing Company, Tulsa, Okla., has returned to his headquarters following a business trip to Fort Worth and West Texas.

* * *

Tom G. Laney, research engineer of the Fisher Governor Company of Marshalltown, Iowa, has returned to the factory after three weeks spent in the Mid-Continent Field.

* * *

C. U. Daniels, Sinclair Oil & Gas Company, in charge of the Texas land office for that company, has returned to his Fort Worth offices following a tour over West Texas.

* * *

J. H. Jenkins, vice president, Tidal Oil Company, in charge of Texas operations, has arrived in Maracaibo, Venezuela, and will be there on a tour of inspection for a few weeks.

* * *

F. E. Richardson, chief construction engineer of the Marland Oil Company, has been transferred from Fort Worth, Tex., to the main office of the company at Ponca City, Okla.

* * *

M. E. Diamond has resigned as cashier of the Northern Division of the Continental Oil Company, with headquarters at Casper, Wyo. Mr. Diamond was transferred to the Denver, Colo., offices but wished to return to his former home in San Francisco, Calif. He has lived in the Rocky Mountain region for eight years and has been with the Continental Oil Company for the past five years.

* * *

Frank A. Morgan, who has been engaged in consulting work in Los Angeles, Calif., for a number of years, is opening offices in Los Angeles, and will engage in a general practice of consulting geologist.

* * *

Joe Holm, division manager in the Oklahoma-Kansas territory for the Atlantic Oil Producing Company, has returned to Tulsa, Okla., after a visit to the Atlantic's western headquarters at Dallas, Tex.

* * *

Ray M. Collins, umpire in charge of the Seminole Field, made a hasty trip to Texas last week to confer with various Texas interests about the new agreements in the Little River and Maud regions of Seminole.

* * *

R. L. Beckelhymer, Phillips Petroleum Company geologist, in Louisiana and Arkansas, is making his headquarters in Aberdeen, while working in Monroe County, Mississippi, after finishing similar work in Florida and Alabama.

* * *

Dr. Justus H. Cline, chief geologist for the Tom C. Johnson Oil Company of Wichita, Kans., has resigned, and will return to his Virginia plantation very soon. He was formerly connected with the geological department of the Dutch-Shell interests.

* * *

Phillip Gossler, president and chairman of the Columbia Gas & Electric Company, before sailing for Havana, Cuba, said: "The outlook for 1928 is good, and there is every prospect that it will be a good year generally for public utility companies."

* * *

F. C. Armbruster, superintendent of the gas division of the Southwestern Gas & Electric Company at Shreveport, La., was called to New York last week on business in connection with the Cities Service-Arkansas Natural Gas Company merger.

* * *

Will J. Beaver, vice president and general manager of the Hockaday Auto Supply Company, of Wichita, Kans., and treasurer of that company's stores in Hutchinson and Salina, Kans., has resigned and will enter another business in Wichita.

* * *

Bonneau Peters, chief scout of the Standard Oil Company, at Shreveport, La., has returned from a several days' trip through the Coastal fields of South Louisiana, extending from the new Sorrento Dome in Ascension Parish to the Cameron and Calcasieu Fields.

* * *

G. G. Langan, Mid-Continent manager for the Hill-Hubbell Company of San Francisco, Calif., has returned to Tulsa, Okla., after three months spent in a visit to California and Oregon, and a boat trip through the Panama Canal to New York City. He was accompanied by Mrs. Langan.

* * *

Sir John Frankland Payne Gallwey left San Francisco, Calif., recently aboard the Norwegian tanker Sildra for the United Kingdom. Sir John who made the long sea voyage from London to the Shell company's Martinez refinery at San Francisco will return as the guest of Captain Bryn, master of the Sildra.

* * *

A. B. Christy, former oil operator in Colorado, who gave up the drilling of wildcats to become a salesman for the Utah Rock Asphalt Company, has purchased an airplane in which to cover his territory. He is a graduate of the Pike's Peak Flying School at Colorado Springs, Colo. His territory embraces most of the western states.

* * *

Fred V. Gordon, whose resignation as vice president of the California Petroleum Corporation, became effective March 1, is taking a short rest prior to engaging in the development of independent oil properties. During his tenure of office with the California Petroleum Corporation, Mr. Gordon negotiated the deal with the Pantepec company and lined up a number of California properties which were acquired by the California Petroleum Corporation during the past year or two.

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A Man-Size Operating Handle
There is plenty of room to insert fingers to unlock the elevator when wearing gloves. The handle is protected and cannot catch on anything in the derrick.

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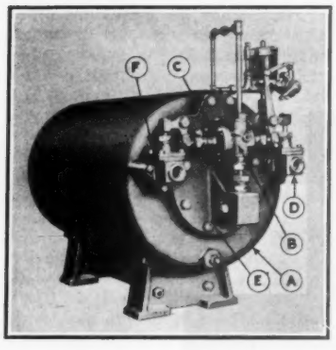
EQUIPMENT AND SUPPLIES

SIMPLIFIED PUMPING TRAP IS ANNOUNCED

A pumping trap known as the Shortt, recently making its appearance, has a number of features that will undoubtedly prove interesting to users of steam traps. The basic feature underlying the design of this trap is the controlling of the pressure and vent valves by means of a small piston valve. This method of controlling these valves has made feasible a simplification in construction of the whole trap by eliminating the need for a pivoting and counterweighted receiver. To the head of the stationary receiver is fastened a plate on which are mounted all of the operating valves as shown in the illustration. Inside the receiver there is nothing but the float.

When the receiver fills the float rises, opening cylinder control valve B. This allows steam or air to flow into operating cylinder C and operate the piston inside this cylinder. In its movement, this piston first closes exhaust valve F and then opens high pressure steam valve D. The high pressure steam then flows into the receiver through port E in receiver head, forcing out the liquid. When the liquid has lowered to the sealing level, the float going down, opens cylinder control valve B, admitting steam to cylinder control



Simplified pumping trap.

valve B and reversing the direction of movement of the piston. In moving back the piston first closes high pressure steam valve D, shutting off steam from the receiver, and then opens exhaust valve F. This allows condensate or other liquid to flow again into the receiver.

Since the liquid during discharge is forced out as fast as the live steam flows in, the pressure in the receiver never builds up to a point must above that of the steam itself. And also since the steam used to discharge the liquid is vented back to the unit being drained no steam is lost and the amount of steam consumed is reported to be very small.

The manufacturer claims that the capacity of the trap is large and that the piston operation of the pressure and vent valves results in a quicker and more positive action. Also because of the instantaneous full-opening of the steam valve there is no "wire-drawing."

The trap functions, it is said, equally well on steam or air. It has many applications including the pumping of high and low temperature liquids such as oil, condensates, acids, gasoline, etc., the draining of condensers, dry kilns, blast coils, vacuum pans, water heaters, receivers, paper machine dryers, etc., and the feeding of boilers. It is manufactured by the W. B. Connor Co., Inc., of New York City.

OPENS CINCINNATI OFFICE

Barber-Greene Co. recently established a new branch office in Cincinnati, Ohio, under the supervision of Paul Frederick, district manager. Mr. Frederick has been with the Barber-Greene Co. for 9 years and went to Cincinnati from the Barber-Greene office in Detroit, where he had several years of experience as a sales engineer. The Cincinnati Barber-Greene office is at 431 Temple Bar Building.

NEW VICE PRESIDENTS OF TRUSCON STEEL CO.

Appointment of three vice presidents of the Truscon Steel Co. of Youngstown, Ohio, has been made by President Julius Kahn.

C. I. Auten, who began as an engineer with Truscon 17 years ago, has been named vice president in charge of sales in the standard building division, structural steel, steeldeck roofing and transmission structures.

M. T. Clark is vice president in charge of sales of the steel window division, with which he has been identified for nine years. Clark was originally an architect, and followed a natural interest in industrial standardization into the manufacturing field. He is credited with much of the popularity of standardized steel windows.

C. D. Loveland, formerly manager of the Pittsburgh district of the Truscon organization, is made vice president with headquarters at Newark, N. J., in charge of distribution in that State.

ELECTRIC HOIST CATALOG

A catalog on the subject of electric hoists has been issued by The Chisholm-Moore Manufacturing Co., of Cleveland, Ohio. Starting with a short treatise on the importance of electric hoists in industry, the new catalog covers in a thorough manner the various types of hoists, illustrates their use, describes their operation and care and gives exceptionally complete diagrams and tables of clearances, dimensions and other data.

NAYLOR PIPE NOW MADE OF TONCAN IRON

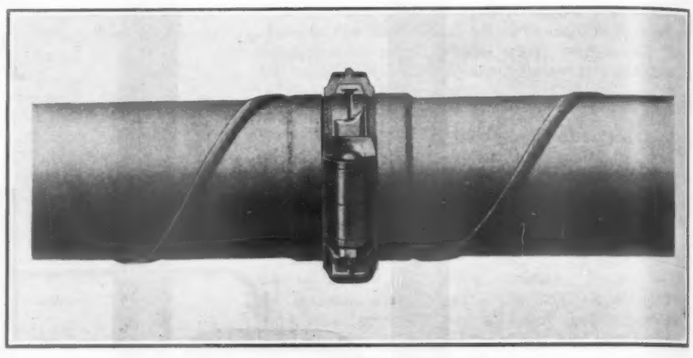
A new pipe—Naylor Spiral Lock-Seam Pipe—with Toncan iron, has resulted in Naylor Spiralweld Iron Pipe, made of Toncan iron, in which the manufacturers say industry is offered the twofold advantages accruing to Naylor pipe and to Toncan iron, never obtainable in a standard product prior to this time.

Naylor Spiralweld Iron Pipe is described as the only Toncan iron pipe made to wrought pipe standards, sizes 4 to 12 inch, 20-foot lengths, threaded ends for standard screw fittings, and flanged ends for standard flange fittings, black, galvanized or asphalt dipped. Heretofore Naylor Spiral Pipe was sold or recommended only for low and medium pressures. It was necessary to make it over into a high pressure pipe. The spiral steam was therefore welded to the wall of the pipe. This additional strength, it is stated, due to the tightly locked and rolled four-ply seam, is not necessary in most instances, but serves as a double safeguard for high pressures. The welded seam makes Naylor Spiral Pipe a pressure conveyance medium.

Naylor Spiral Lock-Seam Pipe, it is reported, has long served many industrials for conveyance lines because it has an absolutely smooth inside and true diameter, which provide a minimum of frictional resistance, and reduces to a minimum capillary attraction and clogging. It is described as having the added advantage of light weight for ease and economy of shipping, handling and installing.

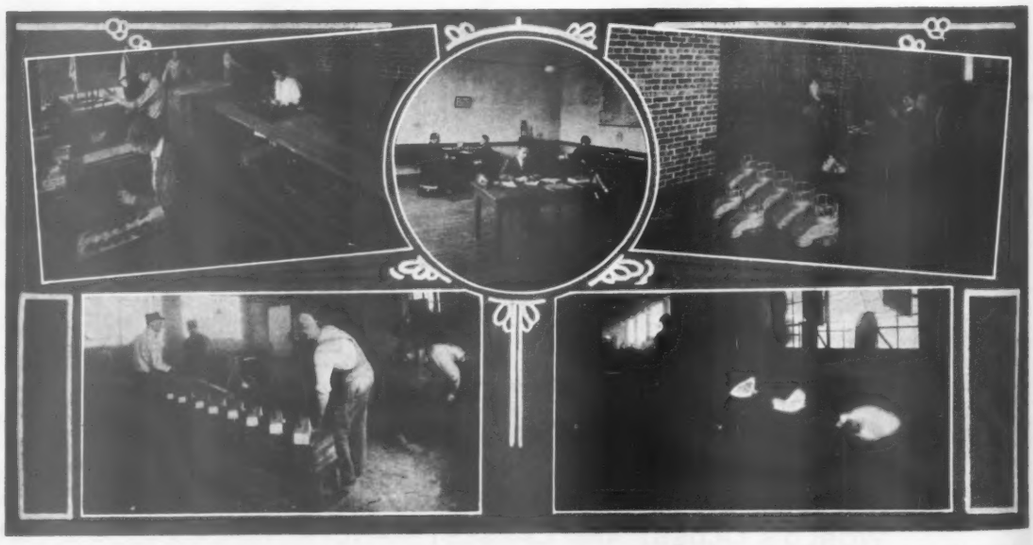
Naylor Spiralweld Iron Pipe, now made of Toncan iron, and lock-seam welded, is stated to provide an even longer life and broader application, Toncan iron not being materially affected by rust and corrosion from acids and alkalies, and the welded seam giving broader application at higher pressures.

For some time past the Naylor Spiral Pipe Co. has made it a practice to forward a short length of its pipe—an unusual procedure both from a manufacturing and service standpoint—to anyone interested in better pipe for conveyance line purposes. This practice has given hundreds of engineers an opportunity to observe the merits of Naylor pipe first hand.



Tightly locked and rolled four-ply seam.

VIEWS OF NEW KIOWA CORPORATION PLANT



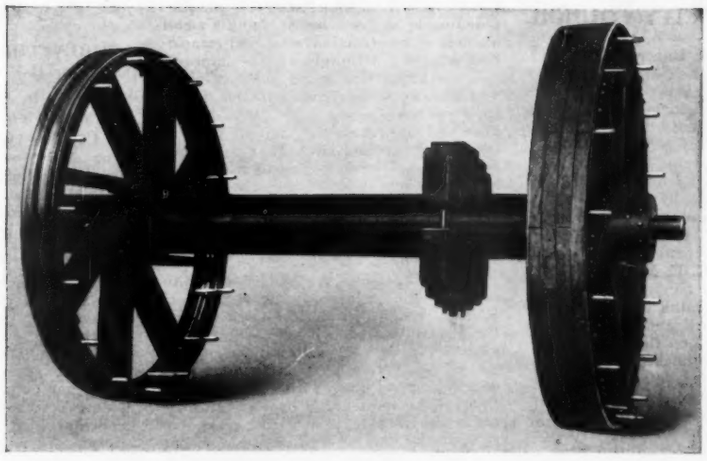
Oval—General office. Upper left—Core room Lower left—Molding room. Upper right—Corner of cleaning room. Lower right—Melting room, showing crucible type oil burning furnaces.

The Kiowa Corp., Marshalltown, Iowa, claims to have, not the largest, but the newest, best lighted and best ventilated brass, bronze, aluminum and monel foundry in the Middle West. The corporation was organized and incorporated in April, 1927. The plant and equipment are new throughout. The officers are L. W. Browne, president; Jacob Eige, vice president, and Ralph C. McCague, secretary-treasurer and manager.

The corporation uses virgin metals in the compounding of over 20 different formulas and specializes in high-speed bronzes for exceptionally severe service, as well as acid-resisting bronzes and monel metal castings.

MOORE STEEL BULL WHEEL

Moore Steel Bull Wheels Conform to A. P. I. Dimensional Standards



SPOKE CONSTRUCTION

Flanges of spokes are trimmed to facilitate assembly. Spokes are tangent, giving direct push on the shaft. Shaft is shrunk on and gudgeons riveted.

THESE features are responsible for the long continued service rendered by Moore Steel Bull Wheels under all conditions:

1. Heavy shaft — ½ inch wall is our standard thickness
2. Shaft heated and shrunk over gudgeons
3. Gudgeons securely riveted in place
4. One piece, rolled steel, double groove tug rim
5. V groove tug, giving maximum pulling power
6. Tangent spokes, exerting direct push on shaft
7. Flanges of spokes trimmed, for easy assembly

1⅛" wall shafts can be furnished for special work.

The thousands of Moore Steel Bull Wheels, doing their work practically without repair or maintenance expense, testify to their success.

World Wide Service for Twenty Years

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CASPER, WYO SHREVEPORT, LA. EL DORADO, KAN. EL DORADO, ARK.

Natural Gas Developments

LITTLE ROCK FRANCHISE BEFORE CITY COUNCIL

By D. H. Bancroft

SHREVEPORT, La., Mar. 5.—A competitive franchise is being sought to supply Little Rock, Ark., with gas from Louisiana fields, whence it has been supplied by the Arkansas Natural Gas Co.'s line from northwestern Louisiana since 1910, though by just whom it is desired has not been revealed by W. L. Shuman, of Miami, Fla., representing those seeking the franchise, reserving that information for the city council's finance committee and Mayor C. E. Moyer, and then only on pledge of secrecy.

Mr. Shuman, claiming to represent interests in New York and other eastern cities, appeared before the council asking for a 30-year franchise and promising construction immediately upon it being granted. His principals, he says, propose a new pipe line from Louisiana fields and creation of a new distributing system within the city of Little Rock in competition with the 240 miles of distributing system already serving Little Rock and North Little Rock and rates a little lower than those now charged by the Little Rock Gas & Fuel Co. to which Arkansas Natural Gas Co. wholesales gas at the city gates. The proposal provides that Shuman post a $20,000 bond to guarantee beginning construction, within six months from date of franchise, of a system sufficient to care for present and future consumption. Shuman also intimated that in as much as the proposed pipe line from Louisiana will pass near Pine Bluff if the Little Rock franchise is granted he will also apply for a franchise from the latter city, with a further intimation that a branch line to Memphis might be considered. Pine Bluff also gets its gas through the Arkansas Natural Gas Co. line and Memphis is one of the objectives of the proposed Richland-St. Louis project announced last fall by Moody & Seagraves.

Shuman's appearance before several meetings of the Little Rock city council and at secret committee meetings at once prompted action by Col. T. H. Barton, of the Natural Gas & Fuel Corp., El Dorado, and W. J. Herring, of Little Rock. Colonel Barton's company, with Public Utilities Co. of Arkansas, is the nucleus of Cities Service Corp.'s proposal to merge these two with the Arkansas Natural Gas Co., Arkansas Fuel Oil Co. and the Insull gas properties of Texarkana, Ark., Shreveport and Marshall, Tex. He had a conference with Mayor Moyer the other day at which he made formal announcement of Public Utilities Co.'s plan to extend its 10-inch line from Clarksville, Ark., gas fields to Conway the remaining 40 miles between Conway and Little Rock. This was the first formal announcement of a bit of pipe line construction forecast in The Oil and Gas Journal last September. The proposed merger, to be operated as the Arkansas Natural Gas Corp., of Delaware, also is understood to have designs on the Memphis project. Mr. Herring advised the Little Rock council that he would appear before it at the hearing on the Shuman project as representative of a group of Little Rock citizens interested in plans for supplying the city from fields within the State. Nothing is known here of this project, as this is the first intimation reaching Shreveport.

The Little Rock city finance committee was instructed to investigate Shuman's financial responsibility and learned that his principals are amply able to do what they propose, but on the bond matter members of council insisted that the proposed guarantee must assure not only commencement of construction within six months but completion of the pipe line from the gas fields and the distributing system within the city within a specified time. They held that the bond as proposed could be protected by doing a small amount of construction work and completion delayed indefinitely with no improvement in Little Rock's gas supply. There was also some question as to the size of the proposed pipe line, which Mr. Shuman answered by advising his group plans a 20 or 22-inch line, but so far as known here he has not advised as to what their sources of supply are, where they are, or whether they have production of their own or plan buying it at the well.

It is indicated that several councilmen will insist upon various changes. Among these are: raising the bond for fulfillment of the grantees' obligations from $20,000 to $250,000 or more and changing the guarantee from a bond to begin construction within six months to a guarantee of completion of the pipe line and distributing system within a specified time; reducing the life of the franchise from 30 years to a shorter period and inclusion of guarantees that the pipe line will be of sufficient size to meet present and future consumption in the coldest weather and that the distributing system will be extended to serve all residential districts, the latter being inserted to prevent the franchise, serving only the big industrial consumers to the exclusion or neglect of the small domestic users.

Meanwhile there have been developments in two other pipe line projects, both entirely within the State of Louisiana. In the case of New Orleans, from which a franchise is sought by interests whose identity has been concealed, it has been proposed that the city advertise in the financial and utilities centers of the country for bids to supply natural gas to the city. This plan, suggested by W. T. Hall, commissioner of public utilities, is understood to have the approval of Mayor O'Keefe. During the week a party of investment bankers was conducted on a tour of the proposed route and the cities and towns to be served by the line Belchic & Laskey, of Shreveport, propose building from the Richland gas fields through the center of the State to the more important centers of the Gulf Coast parishes and along the Texas line. Included in this party were N. F. Glidden, B. B. Burton, and Fred Sutton, New York; H. U. Gade, Boston, and Walter Chittenden, Philadelphia.

OKLAHOMA CITY GAS SUPPLY CONTROVERSY

OKLAHOMA CITY, Okla., Mar. 3.—Investigation of the gas contracts of John B. Nichlos, Chickasha operator, to determine if he is in a position to turn practically all of his output over to Oklahoma City, will be undertaken at once by city officials.

This step follows receipt of the report of Erle K. Ramsey, consulting engineer, on the ability of Nichlos to supply Oklahoma City with gas over a period of years.

Contracts are held by ichlos for supplying several municipalities, but according to Nichlos they do not require such an amount of gas as will prevent him from supplying Oklahoma City in an adequate manner.

Ramsey's report was that the Nichlos gas holdings are not ample to assure the city an adequate supply of gas for more than three years, although under favorable circumstances, this period might be extended.

Ramsey and Nichlos disagree sharply on the potentialities of the field. Ramsey contends the proven area is only 6,000 acres, while Nichlos claims that much productive territory in his own holdings.

Ramsey set the supply of recoverable gas in the field at 145,000,000,000 feet.

LITTLE ROCK-MEMPHIS GAS PLANS INDICATED

SHREVEPORT, La., Mar. 3.—Further indication of plans of the Cities Service Corp. and other interests who will merge into the Arkansas Natural Gas Corp. of Delaware to extend the existing Arkansas Natural Gas Co. line from Little Rock to Memphis appear in information from Little Rock to the effect that the Arkansas Natural Gas Co., one of the to-be-merged companies, has applied to the city council of Forrest City, Ark., for a franchise. Forrest City is a little over half way between Little Rock and Memphis and on a straight line between the two. With Lonoke, Hazen, Brinkley and Devalls Bluff on the same straight line, the proposed extension will furnish five towns of 2,500 to 5,000 population as principal markets plus a number of smaller communities reached incidental to the Memphis objective.

To supply Memphis alone will require a line of larger capacity than the one built by Arkansas Natural Gas Co. from Caddo to Little Rock in 1910 and the proposed extension will probably be 20 or 22-inch. It will be fed by connection at Little Rock with a line from the fields in Logan, Johnson and Franklin Counties in northwestern Arkansas to Conway building, or to be built, by Public Utilities Corp. of Arkansas, another Cities Service Corp. subsidiary extension of which to Little Rock was formally announced a few days ago by Col. T. H. Barton, president of the Public Utilities Co., and of Natural Gas & Fuel Corp., also of El Dorado. Also, after the proposed merger becomes a fact, Natural Gas & Fuel Corp., another of the to-be-merged companies, will probably make its Richland Parish, Louisiana, reserves available by construction of approximately 50 miles of main line from El Dorado or Camden, Ark., to Trees booster station on the Arkansas Natural Gas Co.'s Caddo-Little Rock line at Emmett. This link would be an extension of the 10-inch "Crusader" line the company has under lease from the Richland Field to El Dorado.

Cities Service Corp., through Empire Gas & Fuel Co. and Public Utilities Corp. of Arkansas, has large holdings in the proven Clarksville Field of Johnson County, Arkansas, and potential producing areas in Logan and Franklin Counties adjacent. Natural Gas & Fuel Corp. has considerable holdings in the Monroe Field and also in the Richland Field, where it has already built up a reserve of 239,000,000 feet per day from four wells and has four drilling in addition to what it will take from other producers.

CANADIAN WESTERN GAS REPORT FOR PAST YEAR

CHATHAM, Ontario, Mar 3.—In 1927 the Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary sold gas valued at a gross amount of $1,555,023, and had total receipts from that and other sources of $1,661,433. The production expense was only $19,772, and the cost of natural gas purchased $365,888; but the cost of transmission, distribution, administering and selling as well as adding $187,862 to the allowance for amortization used up all of the receipts but $546,827, which represents the profit for the year. The balance at the beginning of 1927 was $674,264, making a total of $1,221,091 available for distribution. Of this $76,476 was paid out as dividends on the 6 per cent preference stock, and $420,000 on the $8,000,000 of common stock issued. This left an amount of $724,615 to carry forward into 1928.

In his letter to the shareholders, C. J. Yorath, president and managing director, states that the total quantity of gas sold for the 12 months of 1927 was 4,668,896,000 feet, and that about two-thirds of this had gone to domestic consumers, one-ninth to commercial consumers, and the balance to industrial consumers. The average rate obtained was 33.52 cents per 1,000 feet. The company has an open flow daily production from the various fields available for delivery into its lines of 104,150,000 feet, and is taking measures by drilling and bargaining to still further protect its supply.

The company supplies natural gas to Calgary, Lethbridge and a number of smaller communities in southern Alberta. It has production of its own in the Bow Island, Burdett and Foremost Fields, and also purchases "scrubbed gas" from the Royalite Oil Co. in the Turner Valley Field.

COMPLAINT ON SUPPLY ALREADY REMEDIED

SHREVEPORT, La., Mar. 3.—Insufficient gas, complained of two or three weeks ago by the city attorney of Marshall, Tex., to the State Railroad Commission in a request that that body take summary action against the Industrial Gas Co. to improve the situation, has been remedied. It was remedied at about the time the complaint was filed with the commission. Consumers agreed to a slight increase in rates and service was improved by furnishing gas through a booster station, according to news from Marshall.

Three days before Marshall's complaint was filed a crew of men had been sent to the Waskom Field, whence Marshall's gas is obtained, to hook Industrial Gas Co.'s into Commercial Gas Co.'s line which had already become a Moody-Seagraves property and the connection with the Industrial Gas Co. line was waiting for confirmation of sale of the Middle West Utilities Co.'s gas properties in this territory to Moody-Seagraves. This confirmation was received the night before Marshall's complaint was filed and connections made during the night.

Pressure in Waskom wells had dropped to such an extent that in times of unusually cold weather and consequent increased pull, they were unable to deliver. Dixie-Gulf Gas Co.'s booster station at Waskom was already serving the Waskom-Longview-Tyler line (Commercial Gas Co.), which crosses the Industrial Gas Co. line and these two were simply tied in. Similarly, Bethany Oil & Gas Co., also a Middle-West Utilities property acquired by Moody-Seagraves, has tied its Waskom wells through the same station into the Waskom-Shreveport line, the one station thus serving Tyler, Longview, Marshall and intervening Texas towns and Shreveport.

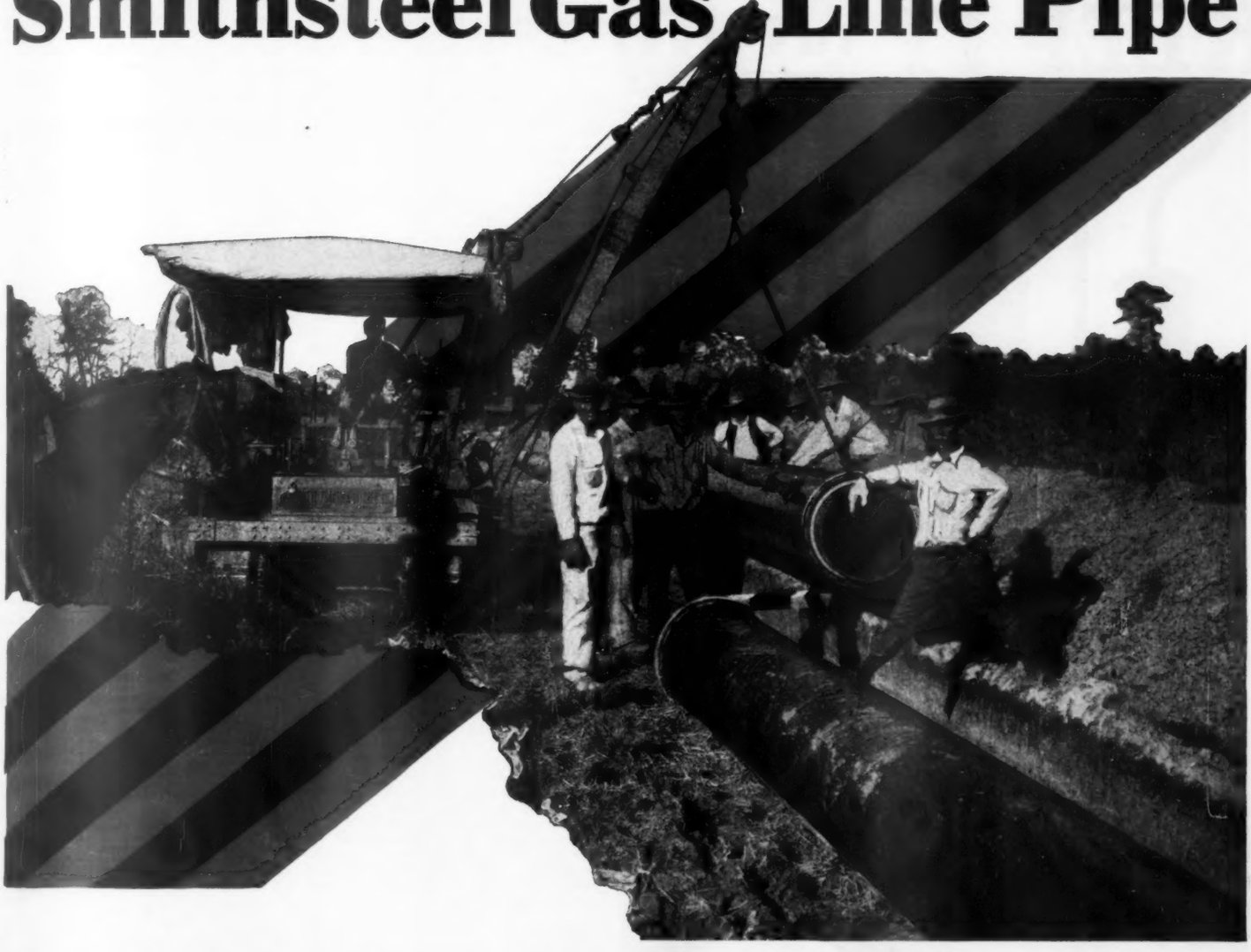
GAS LINE TO AMARILLO ONE-SIXTH COMPLETED

More than one-sixth of the 370-mile natural gas pipe line to connect Denver with the Amarillo Field has been completed and now is ready for testing, according to the initial report of Ford, Bacon & Davis., Inc., in charge of construction, to Public Service Co. of Colorado.

Fifty-nine miles of the line has been finished. This comprises work on sections from three different points — 28 miles from Pueblo, placed underground, the largest section; a section finished close to the Oklahoma-New Mexico line near Clayton, N. Mex., and a third section of 25 miles from the edge of the field to Dalhart, Tex.

Work from Denver, a fourth point, was begun in February. Testings will be made as the sections are lengthened.

Record Laying Time With Smithsteel Gas Line Pipe



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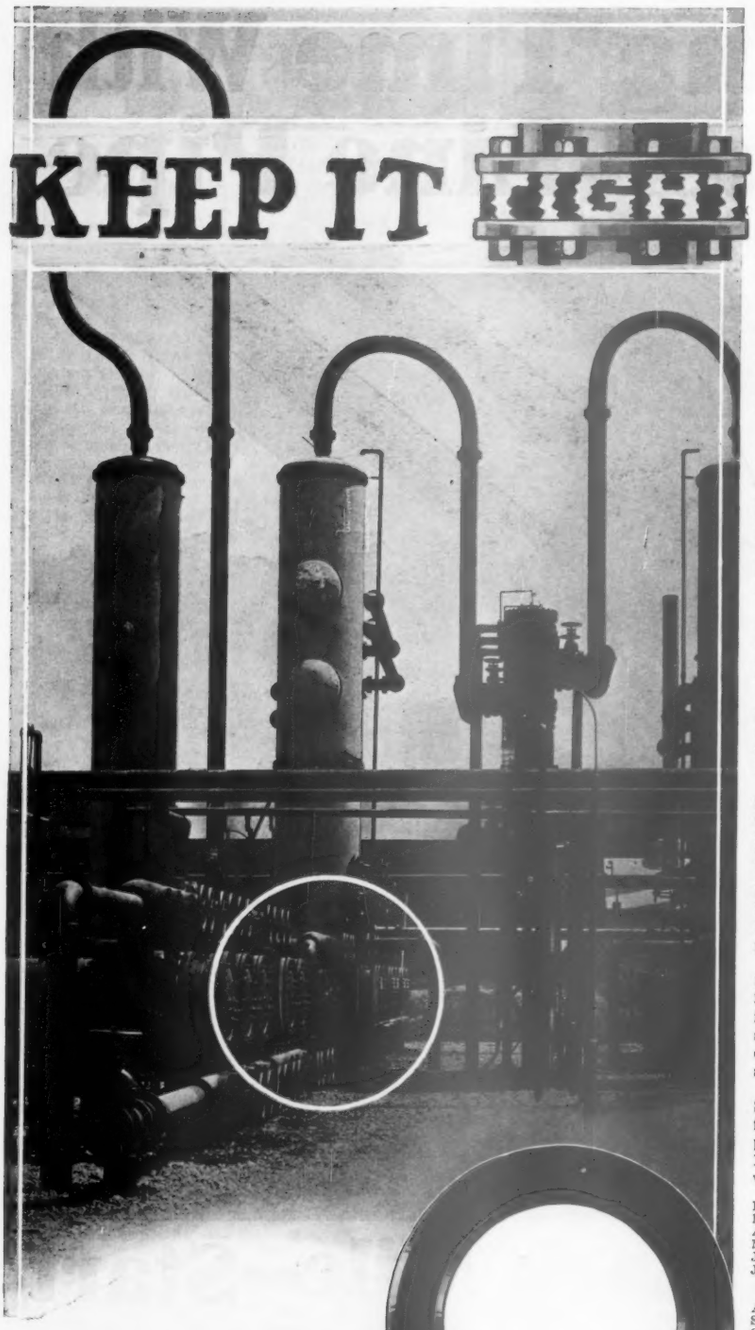

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QUALITY OF CRUDE AND LOCATION OF FIELDS SHOW YEAR'S CHANGES

By James McIntyre

Striking features of the production situation now and one year ago are the changes in the relative quality of the oil produced and the geographical locations of the fields of most importance.

Compared with January, 1927, Oklahoma in January, 1928, showed an increase of 68,013 bbls. a day in production and the increase was practically all high-grade oil. Texas showed an increase of 47,000 bbls. a day, but this increase was altogether in the so-called sour-oil territory in West Texas. Production decreases were noted in the Gulf Coast Field and the Panhandle and in the high-grade fields of North Central and East Central Texas.

Eastern fields showed a net gain of 500 bbls. a day as compared with January, 1927.

In all the other producing divisions there were distinct losses in production. California fell off 37,311 bbls. a day; Kansas, 14,534 bbls.; Arkansas, 41,438 bbls. a day; Rocky Mountain fields, 7,090 bbls. a day; and Louisiana, 3,441 bbls. a day.

The situation at the close of January was indicative of a steady but slower decline in Oklahoma; a slow but steady increase in California; a rapid increase in the production of the inferior oils of West Texas; continued decline in Arkansas, with Kansas, Louisiana, the Eastern fields and the Rocky Mountain areas showing little indication of sharp changes in either direction.

The production of the United States for the 12 months ending January 31 was 904,217,388 bbls., as compared with 903,850,687 bbls. for the 12 months ending December 31, 1927, and 788,496,394 bbls. for the 12 months ending January 31, 1927, showing an increase of 115,720,994 bbls. in the year ending January 31, 1928, over the crude output of the 12 months ending January 31, 1927.

The total production in the United States in January, 73,925,700 bbls., was 3,660,209 bbls. less than the production in July, 1927, which was 77,585,909 bbls., an average decrease of 118,071 bbls. per day. July's production was the peak for all times in the United States.

The trend of production in the United States is shown by a comparison of the first six months and the last six months' production commencing with February, 1927, and ending with January, 1928, which was as follows:

	Bbls. Prod.
February, 1927	68,376,271
March	76,131,831
April	74,538,425
May	77,585,909
June	75,060,312
July	78,635,678
Total (181 days)	450,328,426
August	78,221,471
September	75,633,970
October	77,240,285
November	73,942,737
December	74,924,799
January, 1928	73,925,700
Total (184 days)	453,888,962
Daily average first 6 months	2,488,002
Daily average last 6 months	2,466,788
Difference	21,214

The figures show that the decline in production following the July 30 peak was greater than the increase had been from February 1 to the peak day. As production in the United States continued to decline, although very slowly, in February, it is possible that the cumulative production for the 12 months ending February 28, will be lower than for the 12 months ending January 31, an indication that the industry is beginning to see its way out of the woods.

Since the dawn of the industry overproduction seems to have run in cycles of light oil and heavy oil. Now we are going into a period of sulphur, or "sour" oil, in large volume, as the industry did when the Lima, Ohio, Field was being developed in the late eighties, and with a decided slump in the finer grades of crude. Added to the decline in the production of the very high-grade oils is the fact that in the Seminole, Oklahoma, Field the average gravity of the crude has been lowered by salt water intrusion and already some of the leases in the big field are producing oil that is purchased on a basis of 39 and even 38 gravity. This is a very recent development and is important in these days when refiners are eagerly seeking "sweet" oils of high gravity in the face of a declining production of such crudes.

SUMMARY BY PRODUCING DIVISIONS
Crude Oil Production in the United States in January, 1928

	Dy. Av. Bbls.	Month Bbls.
Oklahoma	682,149	21,146,613
California	613,814	19,028,223
Texas	645,876	20,022,156
Kansas	107,075	3,319,325
Arkansas	90,061	2,791,891
Louisiana	59,326	1,839,106
Montana	11,721	363,378
Wyoming	56,657	1,756,684
Colorado	7,567	234,625
New Mexico	2,414	74,846
Eastern fields	108,000	3,348,000
Total January	2,384,660	73,925,700
Total December	2,416,929	74,924,799
Difference	32,269	999,099

Mid-Continent Fields

	Dy. Av. Bbls.	Month Bbls.
Kansas	107,075	3,319,325
Oklahoma	682,149	21,146,613
North Texas	78,742	2,441,002
Central Texas	43,923	1,361,613
West Texas	285,807	8,860,017
Panhandle Texas	77,689	2,408,359
East Central Texas	24,682	765,142
Arkansas	90,061	2,791,891
North Louisiana	45,266	1,403,246
Total January	1,435,394	44,497,214
Total December	1,455,999	45,135,969
Difference	20,605	638,755

Gulf Coast and Southwest Texas

	Dy. Av. Bbls.	Month Bbls.
Gulf Coast (Texas-Louisiana	122,479	3,796,849
Southwest Texas	26,614	825,034
Total January	149,093	4,621,883
Total December	174,106	5,397,289
Difference	25,013	775,394

OKLAHOMA

Daily Average and Monthly Production in January

	Daily Av. Bbls.	Month Bbls.
Washington County	5,733	177,723
Nowata County	5,026	155,806
Rogers County	1,981	61,411
Osage and Eastern Kay Counties:		
Burbank	36,970	1,146,070
Osage, outside Burbank	26,202	812,263
Total	63,172	1,958,333
Tulsa and Wagoner Counties:		
Bird Creek, Owasso, etc.	3,870	119,970
Red Fork, Sand Springs, Turkey Mountain, Bruner	3,247	100,657
Bixby, Leonard and Jenks	2,382	73,842
Broken Arrow and Coweta	1,158	35,898
Total	10,657	330,367
Okmulgee and Muskogee Counties:		
Mounds and Beggs	7,187	222,797
Bald Hill and Haskell	3,229	100,099
Morris, Boynton and Cole	2,507	77,717
Okmulgee	2,322	71,982
Tiger Flats and Schulter	1,792	55,552
Total	17,037	528,147
Okmulgee, Okfuskee, Seminole, and Pottawatomie Counties:		
Seminole area:		
Seminole City	55,120	1,708,720
Bowlegs	100,314	3,109,734
Little River	36,871	1,143,001
Earlsboro	124,251	3,851,781
Searight	19,623	608,313
Pearson-St. Louis-Maud	8,366	259,346
Wildcats	805	24,955
Total Seminole area	345,350	10,706,850
Henryetta, Deaner-Lyons, etc.	7,158	221,898
Wewoka	8,321	257,951
Cromwell	10,139	314,309
Papoose-Gilcrease	5,126	158,906
Jarvis-Holm	947	29,357
Weleetka	810	25,110
Wetumka	45	1,395
Yeager	499	15,469
Miscellaneous	291	9,021
Total	378,735	11,740,785
Creek County:		
Cushing-Shamrock	17,631	546,561
Glenn Pool, Sapulpa and Kiefer	6,747	209,157
Bristow, Kelleyville and Depew	18,010	558,310
Pickett Prairie and North Bristow	2,412	74,772
Eastern Bristow or Slick	5,906	183,086
Total	50,706	1,571,886
Pawnee County:		
Cleveland	2,869	88,939
Keystone	2,719	84,289
Jennings	2,986	92,566
Otoe	998	30,938
Ralston-Masham	232	7,192
Total	9,804	303,924
Payne County:		
Yale, Quay and Ingalls	5,815	180,265
North Cushing	3,084	95,604
Deep Rock	2,930	90,830
Total	11,829	366,699

(Continued on Page 73)

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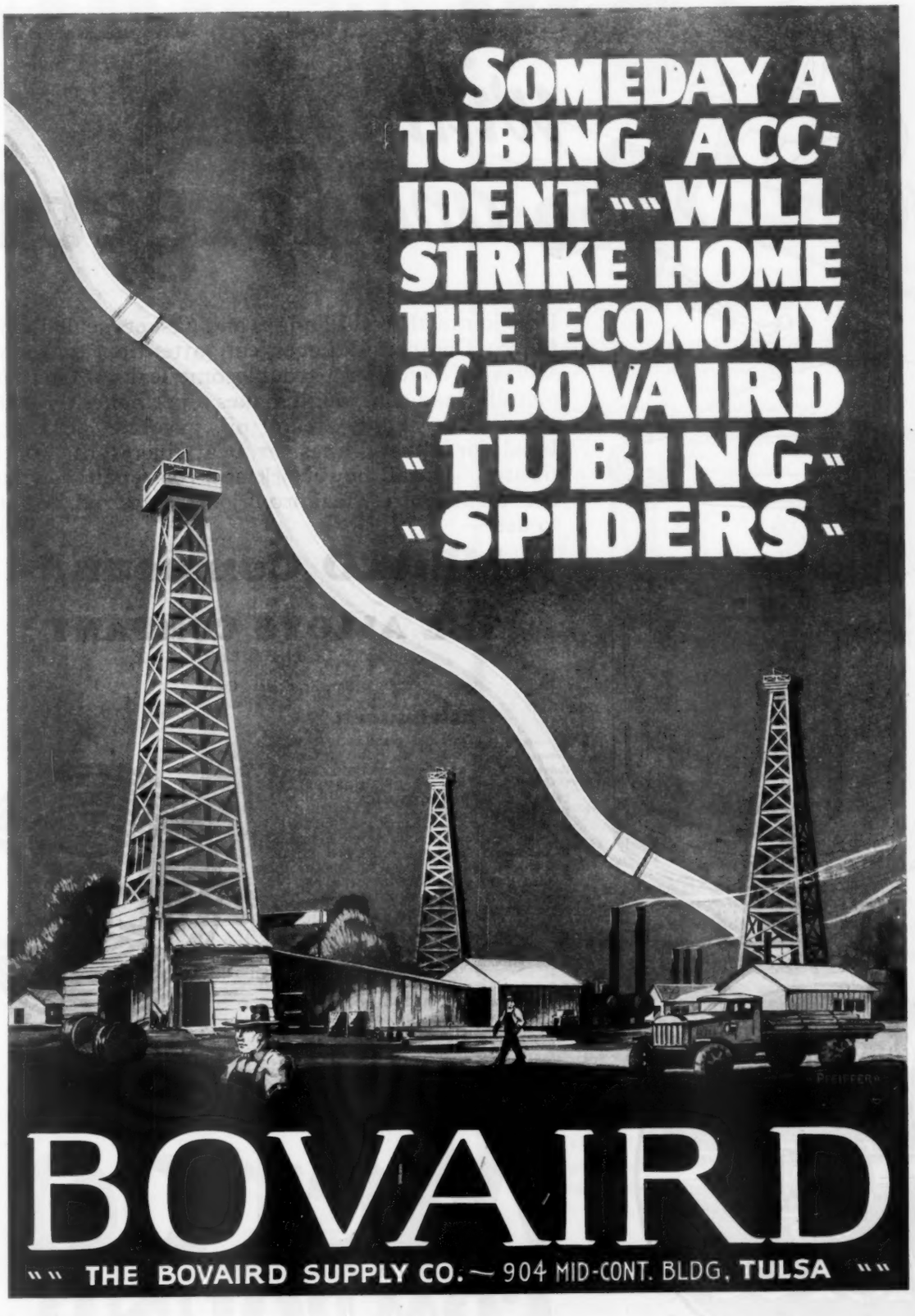
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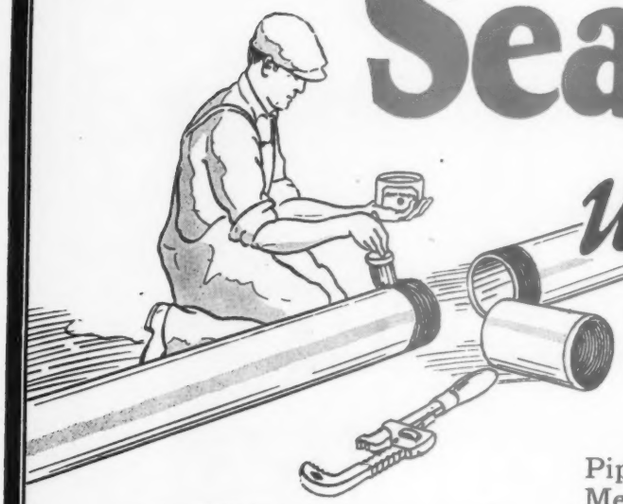

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Merco COMPOUND

Lincoln County:		
Stroud	948	29,388
Davenport	2,556	79,236
Kendrick	436	13,516
Total	3,940	122,140
Kay, Grant and Noble Counties:		
Blackwell	1,261	39,091
Vernon	581	18,011
Otis.ot	1,077	33,387
Deer Creek	1,190	36,890
Ponca City	696	21,576
Mervine	304	9,424
North Braman	2,999	92,969
South Braman	1,897	58,807
Hubbard	3,047	94,457
Thomas	1,679	52,049
Tonkawa	15,361	476,191
Billings	171	5,301
Miscellaneous	1,430	44,330
Total	31,693	982,483
Garfield County:		
Garber	9,160	283,960
Logan County:		
Lovell-Marshall	2,086	64,666
Carter County:		
Healdton	14,240	441,440
Hewitt	8,893	275,683
Graham	4,594	142,414
Fox	3,182	98,642
Brock	884	27,404
Sholom Alechem	12,995	402,845
Total	44,788	1,388,428
Stephens and Cotton Counties:		
Loco-Milroy	2,214	68,634
Comanche	807	25,017
Duncan	5,446	168,826
Walters	1,000	31,000
Kilgore	209	6,479
Knox	5,429	168,299
Total	15,105	468,255
Jefferson County:		
Hambro	1,621	50,251
Caddo County:		
Cement	2,010	62,310
Garvin County:		
Robberson	2,222	68,882
Grady County:		
Knox	5,429	168,299
Pontotoc County:		
Allen	9,215	285,665
Beckham County:		
Sayre	40	1,240
Marshall County:		
Madill	160	4,960
Total January	682,149	21,146,619
Total December	716,400	22,208,417
Difference	34,251	1,061,798

KANSAS

Daily Average and Monthly Production in January

	Daily Av. Bbls.	Month Bbls.
Marion County:		
Florence-Urschell	553	17,143
Peabody	1,183	36,673
Covert-Sellers	630	19,530
Lost Springs	865	26,815
Total	3,231	100,161
Butler County:		
Elbing	2,247	69,657
Potwin	374	11,594
Cameron-Robinson	568	17,608
Wilson-Dunkle	1,551	48,081
Towanda	2,369	73,439
Fox-Bush	1,142	35,402
Nuttle-Koogler	1,776	55,056
Eldorado	7,142	221,402
Smock	182	5,642
Leon-Weaver	3,295	102,145
North Augusta	1,043	32,333
South Augusta	1,524	47,244
Sluss	296	9,176
Douglass	129	3,999
Keighly	1,517	47,027
Benton	27	837
Blankenship	926	28,706
Total	26,108	809,348
Greenwood and Woodson Counties:		
Sallyards	1,210	37,510
Teeter-Pixley-Scott	7,531	233,461
Virgil	6,962	215,822
Thrall-Burkett	2,092	64,852
Seeley	7,891	244,621
Polhamus	1,102	34,162
Miscellaneous	1,975	61,225
Total	28,763	891,653
Cowley County:		
Rainbow Bend	1,595	49,445
Slick	838	25,978
Graham	531	16,461
Rock	204	6,324
Clark	205	6,355
Eastman	582	18,042
Winfield-New Salem	2,828	87,668
Miscellaneous	731	22,661
Total	7,514	232,934
Other Counties:		
Sumner	22,423	695,113
Rice	1,638	50,778
Russell	2,332	72,292
Reno	10	310
Harvey	29	899
Coffey	285	8,835
Chautauqua	2,238	69,378
Elk	1,834	56,854
Wilson	303	9,393
Montgomery	1,412	43,772
Allen	552	17,112
Neosho	495	15,345
Lyon	1,314	40,734
Miami	2,903	89,993
Franklin	390	12,090
Douglas	21	651
Bourbon	9	279
Linn	200	6,200
Anderson	1,978	61,318
Labette	25	775
Chase	51	1,581
Woodson	1,017	31,527
Total January	107,075	3,319,325
Total December	110,554	3,427,174
Difference	3,479	107,849

NORTH TEXAS

Daily Average and Monthly Production in January

	Daily Av. Bbls.	Month Bbls.
Burkburnett	10,837	335,947
Electra	12,003	372,093
Iowa Park-K-M-A	3,388	105,028
Archer County	19,752	612,312
Clay County	515	15,965
Wilbarger County	10,252	317,812
Montague County	9,147	283,557
Young County	9,099	282,069
Baylor County	92	2,852
Cook County	3,657	113,367
Total January	78,742	2,441,002
Total December	81,487	2,526,097
Difference	2,745	85,095

CENTRAL TEXAS

Daily Average and Monthly Production in January

	Daily Av. Bbls.	Mon h Bbls.
County—		
Comanche	175	5,425
Erath	297	9,207
S ephens	7,786	241,366
Eastland	8,196	254,076
Brown	12,376	383,656
Callahan	3,992	123,756
Throckmorton	1,056	32,736
Jack	1,482	45,942
Palo Pinto	474	14,694
Shackelford	6,886	213,466
Jones	1,203	37,293
Total January	43,923	1,361,613
Total December	45,259	1,403,029
Difference	1,336	41,416

EAST CENTRAL TEXAS

Daily Average and Monthly Production in January

	Daily Av. Bbls.	Mon h Bbls.
Mexia	7,595	235,445
Powell	12,611	390,941
Nigger Creek	765	23,715
Cedar Creek	648	20,088
Currie	527	16,337
Richland	528	16,368
Wortham	2,008	62,248
Total January	24,682	765,142
Total December	27,914	865,334
Difference	3,232	100,222

WEST TEXAS

Daily Average and Monthly Production in January

	Daily Av. Bbls.	Month Bbls.
Upton-Crane—		
McCamey-Taylor	14,908	462,148
Church-Fields	78,939	2,447,109
McElroy	18,670	578,770
Total Upton-Crane	112,517	3,488,027
Winkler	87,952	2,726,512
Pecos	49,708	1,540,948
Reagan	22,286	690,866
Howard	6,546	202,926
Glasscock	....	....
Jones	1,236	38,316
Ector	10	310
Loving	81	2,511
Crockett	2,002	62,062
Mitchell	3,469	107,539
Total January	285,807	8,860,017
Total December	245,073	7,596,569
Difference	40,734	1,263,448

TEXAS PANHANDLE

Daily Average and Monthly Production in January

	Daily Av. Bbls.	Month Bbls.
County—		
Hutchinson	50,218	1,556,758
Carson	7,649	237,119
Gray	18,611	576,941
Moore	....	....
Potter	30	930
Wheeler	1,181	36,611
Total January	77,689	2,408,359
Total December	81,847	2,526,097
Difference	4,158	117,638

SOUTHWEST TEXAS

Daily Average and Monthly Production in January

	Daily Av. Bbls.	Month Bbls.
Field—		
Mirando	6,965	215,915
Lulling	14,169	439,239
Lytton Springs	1,545	47,895
Dale	445	13,795
Somerset	1,862	57,728
Southton	164	5,099
Calliham	63	1,965
Kingsville	1,400	43,400
Total January	26,614	825,036
Total December	28,242	875,502
Difference	1,628	50,466

NORTH LOUISIANA

Daily Average and Monthly Production in January

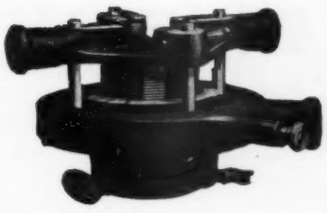
	Daily Av. Bbls.	Month Bbls.
Caddo Light	11,512	356,872
Caddo heavy	3,446	106,826
Homer	4,304	133,424
Haynesville	6,339	196,509
DeSoto-Red River	4,185	129,735
Elm Grove	591	18,321
Bellevue	1,032	31,992
Cotton Valley	4,478	138,818
Urania	7,495	247,845
Pleasant Hill	784	24,304
Total January	45,266	1,403,246
Total December	47,390	1,468,950
Difference	2,124	65,704

ARKANSAS

Daily Average and Monthly Production in January

	Daily Av. Bbls.	Month Bbls.
El Dorado	5,235	162,285
Smackover light	8,718	270,258
Smackover heavy	68,861	2,134,691
Stephens	1,141	35,371
Nevada County	2,855	88,505
Lisbon	2,504	77,624
Bradley	100	100
Champagnolle	648	20,088
Total January	90,061	2,791,891
Total December	95,450	2,962,750
Difference	5,389	160,859

(Continued on Page 107)



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New York Office, 72 Lafayette St.

Oklahoma Gross Production Fourth Quarter

Reports of gross production of crude oil in Oklahoma during the fourth quarter of 1927, filed with the state auditor for taxation purposes, by operators having a total production during the three months valued at $5,000 or more and by royalty owners having a production during that period valued at $2,000 or more, are given below. Royalty interests are designated by the asterisk.

Name and address—	Barrels	M. ft. gas	Amount
A			
Andrews, H. N. and Ethel B., Newkirk*			$2,892.18
Abel, G. M., Wewoka*			3,067.35
Anthony, S. W., Mounds			14,222.62
Alton, B. N., Tonkawa*			9,252.20
Anderson, Forest, Earlsboro*			6,631.94
American Oil Development Co., Pittsburgh, Pa.	6,105.47		7,587.36
Accumulative Royalties Corp., Tulsa*	7,891.75		10,404.27
American Drilling Co., Lindsborg, Kans.		59,531	5,953.12
Amerada Ref. Corp., Tulsa (suspense)	5,999.58		8,081.70
Amerada Petroleum Corp., Tulsa	1,556,011.64	1,431	2,142,271.89
Anthis, James M., Muskogee*			2,657.86
Amster, N. L., Ardmore	7,007.25		11,147.38
Adams, C. F., Ardmore*	2,321.80	4,768	2,618.33
Alma Royalties Corp., New York City*			16,508.57
Adams & Prince, Amarillo, Tex.			8,635.86
Apple, S. A., Ardmore*			21,186.22
Alma Petroleum Co., Oklahoma City		126,866	8,719.98
American Royalty Petroleum Co., Tulsa*	2,484.04		4,145.81
American Royalty Co., Long Beach, Calif.*			3,051.54
American National Bank, Ardmore*			2,889.15
American Oil & Ref. Co., Oklahoma City		1,899,116	96,974.01
Argo Oil Co., Denver, Colo.			72,834.84
Aldridge, E. C., Wewoka*			40,115.38
Anderson, F.*	7,872.62		10,411.45
Anolu Petroleum Corp.			11,615.46
Abraham, Joe, estate, and Fannie Abraham, Bristow*			6,009.63
Allen, Lizzie, Bristow*			3,035.70
Alexander, J. A., guardian, Okemah*			2,309.58
Alexander, J. M., Seminole*			3,722.70
Agirine Oil & Gas Co., Tulsa*			3,088.51
Almota Oil Co., Tulsa	5,130.94		6,460.79
American Pipe Line Co., Wichita Falls, Tex.	6,539.52		8,642.99
Andrews, Walter, Weslaco, Tex.*			5,378.40
Atlas Royalties Co., Tulsa			9,383.45
Atlas Royalties Corp., Tulsa*	8,091.00		10,512.70
Atlas Royalties Corp., Tulsa*	85,349.77		115,279.81
Atlantic Oil Producing Co., Dallas, Tex.*	10,742.25	2,946	14,821.84
Atlantic Oil Producing Co., Dallas, Tex.		831	27,082.37
Atlantic Oil Producing Co., Dallas, Tex.	610,302.96		812,520.36
Arthur Oil Co., Sistersville, W. Va.			11,867.67
Arkansas Fuel Oil Co., Pittsburgh, Pa.			8,780.67
Adams Royalty Co., Chicago, Ill.*	88,637.31		127,310.30
Argo Oil Co., Denver, Colo.*			4,151.14
Argo Oil Co., Denver, Colo.			106,240.31
Aztec Oil Co., Tulsa			11,429.32
Atlantic Oil Producing Co., Philadelphia, Pa.			27,817.67
Atkins, T. W., Tulsa		105,041	8,403.31
B			
Barker, W. L., Ada*			36,435.52
Barker, G. H. and Anna, Shawnee*			49,134.97
Barker, G. H. and Anna, Shawnee*			3,232.57
Barker, W. L., Ada*			2,207.36
Beatty, Nettie E., Los Angeles, Calif.*	1,651.72		1,966.69
Berryhill, Earle, Sapulpa			3,355.30
Berryhille, Earle, Sapulpa*			3,411.40
Billington, C. B., Shawnee*	6,388.57		8,538.40
Bohanan, W. C. and Myrtle, Santa Fe, Okla.*			2,581.09
Biedsoe, J. W., Cordell*	2,741.75		3,423.11
Blakeney, B. B., Oklahoma City*			5,532.67
Blow, A. M., Tulsa*			2,028.22
Boepple, Ben and Emma, Covington*			2,547.14
Buchner Co., Holdenville*			2,629.75
Brown, W. P. and Maud E., Okmulgee*			2,014.02
Baker, T. J., and A. D. Adcock, Okmulgee*			8,964.69
Bissett, Lytle & Gray, Tulsa	14,424.04		17,786.89
Barnum, Hubert (Kay County)*			4,412.41
Blue Ribbon Oil & Dev. Co., Shawnee*			17,420.82
Brock, John L., trustee, Okmulgee*			11,030.28
Baker, T. J., Okmulgee*			4,922.37
Baker, Stacy, Okmulgee*			4,405.68
Billingslea, F. R., Tulsa*			81,550.72
Braden & Moore, Tulsa	5,633.40		8,351.93
Ballard, James, Cushing*			4,666.34
Bay State Oil & Gas, Kansas City, Mo.	15,920.91		21,229.90
Birdsall, Elmer M., Tulsa*	4,170.02		5,479.12
Brown, J. J., Jr., Wichita, Kans.*			2,614.73
Brown, A. C., Oil Enterprise, St. Louis, Mo.	6,563.93		8,088.68
Black, Sivalls & Bryson, Inc., Bartlesville*	17,662.45		23,655.64
Black, Sivalls & Bryson, Inc., Bartlesville	3,079.07		4,116.61
Berry, James E., Stillwater*			14,662.28
Bryant, H. E. and Jessie F., Earlsboro			23,181.65
Bowlus, Thomas H., Iola, Kans.*			2,498.82
Berry, W. E., Stillwater*			13,356.00
Berry, G. M. Berry, Pawnee*			11,937.16
Berry, Thomas H. and Harriet Berry, Stillwater*			15,833.73
Billings, George M.*			5,056.81
Bombarger, C. C., Paden*			3,249.66
Buchols, Augusta, Perry*			2,495.13
Buckles, C. O., Tulsa*			2,170.05
Beacon Oil Co., Bartlesville	7,121.28		8,758.59
Bowers, A. E., Wellington, Kans.*			1,950.33
Brozell, James, Oklahoma City*			3,609.98
Brown, W. E., Tulsa*			2,159.03
Blackwell Oil & Gas, Blackwell			201,346.60
Blackwell Oil & Gas, Blackwell*			7,079.30
Burlingame, C. E., Corp., Bartlesville	7,908.40		10,574.42
Broyles, W. O., Stillwater*			3,368.40
Brann, James, Bartlesville	6,104.80		8,701.43
Bell, Gladys, Oil Co., Tulsa	17,342.50	131,812	31,777.00
Barnsdall Oil Co., Tulsa	2,266,786.67		2,999,562.44
Barnsdall Oil Co., Tulsa		1,475,791	62,867.76
Barnsdall Oil Co., Tulsa	177,097.66		222,396.65
Baltic Operating Co., Bartlesville	4,716.82		5,023.73
Barrett, Mary F., Austin, Tex.*	2,107.49		2,676.51
Barbara Oil Co., Oklahoma City			13,538.67
Belco Royalties, Inc., New York City*			44,197.67
Barnsdall Oil Co., Tulsa	177,097.66		222,396.65
Barnsdall Oil Co., Tulsa*	95,049.35		126,030.51
Brown, E. L., Tulsa*			8,131.72
Brown, H. H., guardian, Ardmore*			4,729.49
Brown, S. J., Duncan*			3,093.56
Bermont Oil Co., Bristow*	3,672.81	3,922	5,290.31
Blank, E. J., Cushing*			8,203.73
Brett, George H., Ponca City*			6,608.71
Burke, John F., and H. N. Greis, Tulsa*			14,225.59
Burke-Greis Oil Co., Tulsa			104,501.68
Burke-Hoffeld Oil Co., Tulsa			9,141.15
Brittain, W. L., Oklahoma City*			2,524.93
Braman Oil Co., Inc., Tulsa			12,258.00
Beard, J. G., and S. I. Kolb, Duncan			9,337.57
Beard, J. G., and S. I. Kolb, Duncan	5,077.78		7,273.44
Beard & Crump, Duncan			10,485.53
Britton-Johnson Oil Co., Tulsa	6,193.98		7,114.69
Brown, W. A., Sulphur*			2,174.52
Billings, Henrietta M., Enid*			5,095.15
Billings, W. S., Enid*			4,931.37
Burks, Mrs. R. E., Braman*			2,905.91
Biddle, G. A., Braman*			2,905.90
Bennett, John H., Pauls Valley*			3,452.09
Bole, George S., Tulsa*	2,549.90		3,648.03
Bart Royalty Co., Bartlesville*	3,866.73		5,168.27
Bole, George S., Tulsa	12,542.37	25	17,032.70
Brown, Mr. and Mrs. L. A., Shawnee*			7,658.15
Breene, Frank, Tulsa	6,721.20		7,881.13
Bryan, J. L., Chickasha*			2,466.92
Buck, William, Wetumka*			6,401.60
Brown, nee (Katie Snell), Dustin*			3,412.72
Bumpass, J. M., Duncan*	4,957.03		5,784.14
Burkhalter, L. J., Blackwell*			3,366.31
Buckner, Roy, Wewoka*			3,107.14
Buttram, Frank, Oklahoma City			8,615.90
Buttram, Frank, Oklahoma City*			25,346.10
Bartlett Dev. Syndicate No. 1, Sapulpa*			7,208.10
Baker, A. O., Shawnee*			2,450.34
Baker, George, Maramec*			3,666.42
Baker, George, Maramec			5,158.72
Baker & Strawn, Tulsa			13,359.94
Benson, O. L., Holdenville*			3,114.00
Bird, J. W., and William Hanley, Bradford, Pa.	6,200.08		7,813.14
Bechtel, E. R., Blackwell	3,518.97		4,771.89
Boggs, Charles W., Los Angeles, Calif.	11,021.09		13,333.57
Beggs Oil & Gas Co., Okmulgee	4,697.80		5,364.35
Born, Henry, Seminole*			2,883.57
Bowlegs, Lula, Seminole (supplemental)*			14,334.00
Bradley & Bradley, First Nat'l Bank for, Muskogee			9,030.13
Black, Sivalls & Bryson, Inc., Bartlesville*			3,593.13
Bellis, J. H., Cushing*			3,541.60
Belveal, F. M., Enid*			3,537.61
Bolene, V. E., Long Beach, Calif*			2,303.84
Berry Petroleum Co., Tulsa	16,315.46	248,674	21,000.00
Breen, George F., New York City	15,486.58		18,776.21
Badger, B. J., Okmulgee*			2,165.64
Billings, George M., Long Beach, Calif.*			5,056.81
Born, H. A., Seminole*			6,497.57
C			
Clubb, Laura A., Tulsa*			15,696.14
Clubb, I. M., Kay City*	11,377.00		15,638.58
Coline Oil Co., Oklahoma City	6,554.88		8,218.84
Coline Oil Co., Oklahoma City	60,486.01		62,211.66
Cities Service Gas Co., Bartlesville		162,285	12,982.31
Cities Service Gas Co., Bartlesville (suspense)			868.80
Commercial Drilling Co., Tulsa*	6,357.76		8,869.24
Cluck, A. V. and L. B., Seminole*			36,457.32
Churchill, W. S., Tulsa*	4,381.02		5,837.15
Carson, W. A., Oklahoma City			10,564.40
Caves, Noah J., Stroud*			2,316.66
Conyers, Clarissa, Covington*			2,258.83
Connell, W. J., Kingman, Kans.*			6,377.15
Campbell, J. D., Seminole*			101,310.27
Cushing Ref. & Gasoline Co., Cushing			6,191.67
Central Commercial Oil Co., Tulsa	1,847.33		2,597.61
Cook, Anna S., Muskogee*			17,499.31
Craig and Andrews, receivers, Chandler*			2,304.94
Connelly, G. W., Caney, Kans.			13,083.69
Critchlow, W. S., Ardmore			19,678.69
Campbell, John C., Oklahoma City*			4,571.74
Cline, W. C., trustee, Newkirk*			2,051.13
Cox, Edwin B., and Jake L. Hamon, Ardmore*			24,842.30
Canary, S. C., Tulsa	6,594.99		8,116.55
Chestnut & Smith Corp., Tulsa	3,291.11		4,441.75
Cline, W. S., Newkirk*			2,827.81
Cox, Anna Elizabeth, Ardmore*			4,250.27
Carmichael, Dorothy, Tonkawa*			3,119.01
Campbell, D. H., Wewoka*			8,444.30
Carpenter, J. R., Stroud*			6,360.91
Catlett, O., Tulsa			33,423.65
Callaway & Rosa Rogers, Earlsboro*			96,714.61
Cutlip, C. Guy, Wewoka*			3,937.54
Carlock, J. H., trustee, Ardmore			5,042.65
Chambers, O. L., Tonkawa*			4,618.11
Clark, H. E., Philadelphia, Pa.		309,155	23,785.34
Clark, Dillard H., Jr., Ponca City*			5,779.45
Colson Oil Co., Tulsa	11,614.64		13,893.62
Clark, H. E., Okmulgee			14,540.69
Central National Bank, Okmulgee			25,807.46
Conservation Oil Co., Tulsa	20,417.98		26,437.35
Cortez Oil Co., Tulsa			6,066.91
Coates, Mary C., and Wirt Franklin, Ardmore*	2,769.86	555,625	3,470.24
Calloway & Rosa Rogers, Earlsboro*			4,196.56
McCrary, E. W., Tulsa*	2,412.47		2,972.06
Champlin & Bass, Inc., Holdenville	5,500.35		7,085.54
Cole, J. R., Jr., Tulsa			8,926.11
Clark & Cowden, Duncan	20,699.26		26,397.68
Cudahy Oil Co., Cleveland, Ohio	12,992.09		15,480.66
Cockrell, Claude, Hunter*	1,590.58		2,322.35
Chapman, J. O., Waxahachie, Tex.*	2,679.79	2,162	3,626.28
Caroline, Charley, Wewoka*			3,413.55
Cumberland Petroleum Co., Cleveland, Ohio	10,315.44		13,270.17
Cities Service Gas Co., Bartlesville			88,407.67
Cook, Annie S., Muskogee			6,973.63
Colonial Royalties Co. and Jo. Cappeau, Jr., Tulsa*			17,619.60
Cowden, R. A., Shawnee			3,256.43
Commonwealth Trust Co., Okmulgee	4,495.98		5,667.39
Caddo Oil Co., Tulsa	18,966.17		24,127.59
Cotton Belt Petroleum Co., Tulsa	18,938.15	80,525	21,324.13
Cato Oil & Gas Co., Central Nat'l Bank for			30,585.63
Conner, Thomas, deceased, by Betty Conner, Eufala*			3,888.93
Carman, George S., Bristow*			3,282.80
Caudill, Samuel J., Tulsa*	3,133.33		4,026.56
Claude Oil Royalties Corp., New York City			20,331.85
Crews, L. E., heirs, Enid	1,393.65		2,166.85
Chapman, J. A., Tulsa*	7,444.80		10,727.30
Campbell, J. D., Seminole*	3,763.70		4,930.70
Clarion Oil Co., Houston, Tex.	7,091.24		9,199.48
Creo Oil Co., Tulsa	6,412.05		7,682.97
Crews Estate Oil & Gas, Enid*	9,755.66	17,673	16,047.93
Campbell, J. D., Seminole*			56,462.62
Carter Oil Co., Tulsa	4,312,222.36		5,637,465.31
Carter Oil Co., Tulsa			298,501.80
Continental Oil Co., Denver, Colo.	704,427.28	47,628	918,087.92
Continental Oil Co., Denver, Colo.			14,794.23
Continental Oil & Ref. Co., Independence, Kans.	7,369.61		9,414.23
Continental Oil Co., Tulsa	7,128.97	3,312	10,993.10
Champlin Refining Co., Enid	9,064.85		13,337.84
Champlin Refining Co., Enid			13,320.48
Champlin Refining Co., Enid	134,880.96		184,434.63
Comar Oil Co., St. Louis, Mo.	932,139.51		1,297,391.67
Comar Oil Co., St. Louis, Mo.		1,600,898	63,596.44
Currie, W. A., Columbus, Ohio*			6,772.63
D			
Doss Oil Royalty Co., Oklahoma City*	28,656.14		37,594.69
Davis, E. D., Oil Co., Oklahoma City			8,628.14
Davis, Lillie, Trousdale*			2,447.14
Day, Annie, Earlsboro*	9,901.07		13,125.02
Day, J. F., Earlsboro*	5,725.09		7,596.79
Denney, C. E., Alma*			2,063.38
Darby, J. F., Muskogee*			2,362.36
Diamond, Harry H., Holdenville*			2,931.83
Dickason, Elmer, Gueda Springs, Kans.*			2,175.36
Doneghy, J. C., Tulsa*	2,031.86		2,697.75
Duncan, U. T., Braman*			2,247.24
Dillard, V. E., Ardmore*			4,355.60
Delaware Consolidated Oil Co., Tulsa	28,092.98		33,142.51
Dixon, J. L., Wewoka*			8,506.33
Dixon, W. L., Duncan*			3,888.93
Dilley, W. W., trustee, Waurika*	6,122.75		6,559.49
Duff, D. B., Cleveland, Ohio*			5,066.35

(Continued on Page 95)

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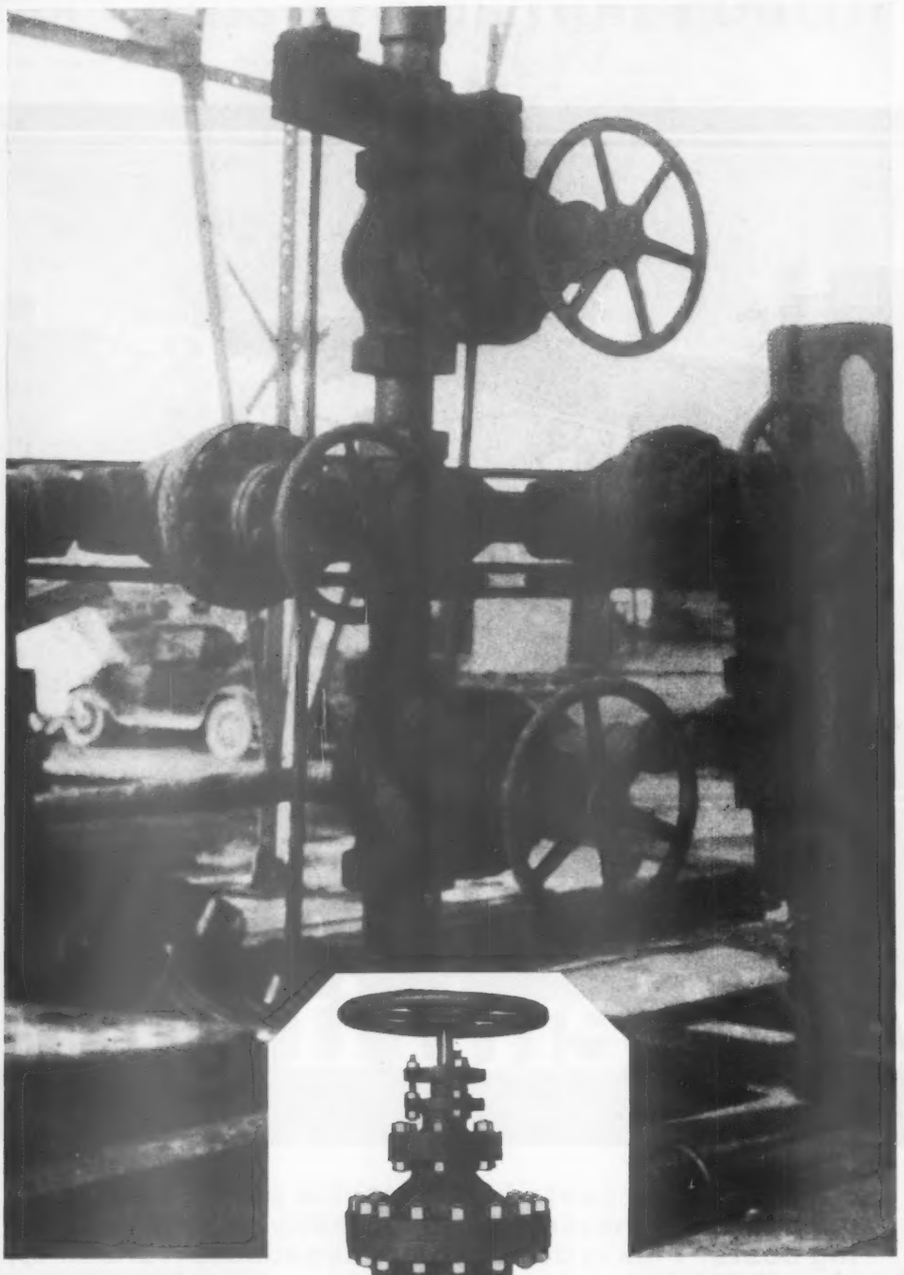

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Branch Stores in all Oil Fields
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OIL WELL SUPPLY CO.
Pittsburgh
New York
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London

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 42)

Sec. 15-21-19w ..... Drilling 700 ft.
Wight & Wahl's No. 1 James, C NW, Sec. 16-23-20w ... Rig.

GARFIELD COUNTY

E. L. Love and others' No. 1 White, SE cor. NE Sec. 9-24-6w ..... Hole full water 4,650 ft., shut down 4,720 ft.
Failing et al's No. 1 Gorsuch, SE cor. SE. Sec. 14-24-3w .. Sand 4,681-4,703 ft., show oil, drilling.
Fleming and others' No. 1 Wengert, NW cor. NW Sec. 5-22-5w ..... Shut down 750 ft.
Beepple and others' No. 1 Schweer, C SW NE Sec. 12-21-4w ..... Shut down 1,850 ft.
Marland and Barnsdall's No. 1 Looman, NE SE Sec. 9-20-4W ..... Fishing 5,740 ft.
Marland Oil Co.'s No. 1 Miller, SW cor. SW Sec. 12-20-4w Shut down 4,586 ft., waiting on test Sec. 9-20-4w.

ELLIS COUNTY

Oklahoma Northern's No. 1 Young, NW cor. NW Sec. 9-21-25w ..... Fishing 300 ft.
Hoffman and others' No. 1 Otten, NW cor. NE Sec. 20-15-3w ..... Rig blown down.

NOBLE COUNTY

Barnsdall Oil Co.'s No. 1 Bumberger, NE cor. NW SE Sec. 11-21-1 ..... Cellar.

KINGFISHER COUNTY

Slick & Harrington's No. 1 Cromer, SE cor. NE NE Sec. 25-19-5w ..... Location.
H. H. Morgan's No. 1 Buscon, SW cor. SE NE Sec. 30-16-9w ..... Shut down 1,610 ft.
Galt-Brown Oil Co.'s No. 1 Wolff, NW SE Sec. 6-16-7w. Spudding new well.
McKinney & Crawford's No. 1 Sturgeon, NE cor. SW Section 27-16-6w ..... Drilling 3,900 ft.
Wiley & Manahan's No. 1 Johnson, C NW Sec. 26-16-5w Drilling 4,370 ft.
Reiter-Foster Oil Co.'s No. 1 Unknown, SW cor. SE Sec. 23-15-5w ..... Rig.

LOGAN COUNTY

Champlin Refining Co.'s No. 1 Clark, SE cor. SW Sec. 8-19-4W ..... Fish., 4,775 ft; show gas.
Roxana Petroleum Corp.'s No. 1 Freelove, SW cor. SW Sec. 17-19-4w ..... 100 bbls. oil 6,128-6,132 ft.; drilling.
Sinclair Oil & Gas Co.'s No. 1 Webber, SE cor. SE Sec. 18-19-4w ..... Drilling 4,808 ft.
Huckaby & McCoy's No. 1 Perfect, NE cor. NE Sec. 9-12-15w ..... S.D., 1,200 ft; drlg.
Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w.. Underreaming 3,750 ft.
Garber & Pulse's No. 1 Widdoes, NE cor. SE NW Sec. 32-18-3w ..... Shut down 1,200 ft.
T. B. Slick's No. 1 Bryan, SW cor. SE Sec. 28-17-1 ..... 5,720-24 ft.; 600 ft. water.
Willis and others' No. 1 Sweezy, SW cor. NW SE Sec. 20-17-3 ..... Shut down 4,677 ft.
W. R. Ramsey's No. 1 McMillan, NW SW Sec. 24-15-3w... Hole full of water 4,507-4,517 ft., shut down for orders.
Bu-Vi-Bar's No. 1 Kirkpatrick, NE SW SW Sec. 12-15-1w. Shut down 4,504 ft.

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w ..... Spudded and shut down.

MUSKOGEE COUNTY

Finefield and others' No. 1 Jobe, NE cor. NW SE Sec. 12-15-18 ..... Sand 1,100-10 ft., dry, shut down 1,252 f.. in lime at contract depth.
J. R. Parks No. 1 Beuge, CWL NE NW Sec. 13-15-19 ..... Drilling 355 ft.
J. A. Evans' No. 1 Thompson, SW cor. NW SW Sec. 2-14-19 ..... Dry and abandoned 510 ft.
Elk Drilling Co.'s No. 1 Jones, SW cor. SW Sec. 34-13-17 ..... Spudded and shut down.
Sioux Oil Co.'s No. 1 Bradshaw, CEL NW NE Sec. 24-13-18 ..... Drilling 1,260 ft.
L. T. Haney's No. 1 Mitchell, SE cor. NW SE Sec. 33-13-18 ..... Fishing 1,660 ft.
Rolestone and others' No. 1 Hixon, CNL SE NE Sec. 1-13-19 ..... Drilling 1,425 ft.

OKLAHOMA COUNTY

Cromwell Oil & Gas Co.'s No. 1 Proctor, C SE Sec. 21-14-3w ..... Shut down 4,075 ft.
Slick & Bailey's No. 1 Koeser, C SE NE Sec. 18-13-3w... Rigging up standard tools and shut down 3,500 ft.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ..... Repairing rig 6,840 ft.
Cromwell & Franklin's No. 1 Gross, SW cor. NE SW Sec. 22-10-2w ..... Shut down 4,702 ft.

CREEK COUNTY

Lima O. & G. Co.'s No. 1 Grayson, NW cor. NE NE, Sec. 11-14-7 ..... Shut down 3,650 ft.

CANADIAN COUNTY

T. B. Slick and others' No. 1 Pazowrech, NW SE Sec. 29-13-5w ..... Hole full of water 4,338-4,452 ft., shut down 4,580 ft.
Ramsey Brothers' No. 1 Newman, CSL NE Sec. 9-11-7w.. Drilling 4,170 ft.

LINCOLN COUNTY

Bu-Vi-Bar Petroleum Co.'s No. 1 School Land, C NE SE Sec. 16-13-4 ..... Shut down 4,500 ft.

OKFUSKEE COUNTY

Barnsdall Oil Co.'s No. 1 Self, SW cor. SE NE Sec. 21-13-9 ..... Dry and abandoned.
Prairie Oil & Gas Co.'s No. 1 Gray, SW cor. SW Sec. 19-11-7 ..... Cleaning out 3,905 ft.
Moose & Daniels' No. 1 Stidham, SW cor. NW Sec. 4-11-10 ..... Shut down 622 ft.

SEQUOYAH COUNTY

Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ..... Rigged up and shut down.
Citizens Gas Co., No. 1 Greenstreet, SW cor. NE SE Sec. 33-12-27 ..... Rig.

POTTAWATOMIE COUNTY

H. F. Wilcox Oil & Gas Co.'s No. 1 Pickard, SE cor. SW Sec. 32-11-2 ..... Dry and abandoned 4,500 ft.
Shaffer-Kilgore-Sykes' No. 1 Ives, C SE SE Sec. 13-10-3 ..... Drilling 4,949 ft.
Prairie Oil & Gas Co.'s No. 1 Lumbley, SW NW SE Sec. 1-10-5 ..... Casing 4,690, top Viola.
Central Commercial Oil Co.'s No. 1 McCrain, NW cor. NE SW Sec. 16-10-5 ..... Drilling 4,730 ft.
Superior Oil Co.'s No. 1 Herminghausen, SW cor. NW NE, Sec. 24-8-2 ..... Drilling 4,167 ft.
Davy & Detrick's No. 1 McGehee, SW SE NW Sec. 10-6-2 ..... Fishing 4,998 ft.
Amerada Pet. Corp.'s No. 1 Gravel, SW SE NE, Sec. 1-8-4 ..... Drilling 3,790 ft.

CADDO COUNTY

Magnolia Petroleum Co's No. 1 Shelby, SW cor. SW Sec. 28-10-12w ..... Drilling 1,880 ft.
J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w.... Shut down 150 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w ..... Shut down 3,294 ft.

OSAGE COUNTY

Kay County Gas Co.'s No. 1 SE cor. SW Sec. 4-25-6 ..... Dry and abandoned 3,349 ft.
Indian Terr. Ill. Oil Co.'s No. 1, SE cor. NE Sec. 8-25-7... Drilling 3,036 ft.
Prairie Oil & Gas Co.'s No. 1, SE cor. NE Sec. 11-24-6.... Drilling 3,065 ft.
Devonian Oil Co.'s No. 1, NW cor. SE Sec. 18-22-8..... Sand 2,260-2,315 ft., 4,000,000 ft. of gas, went to water.

SEMINOLE COUNTY

T. B. Slick's No. 1 School Land, SE cor. SE Sec. 16-6-5... Rig.
Roxana and Barnsdall's No. 1 Stidham, NW cor. NE Sec. 6-10-7 ..... Location.
Prairie Oil & Gas Co.'s No. 1 Davis, NE SE Sec. 21-10-7.. Rig.
Prairie Oil & Gas Co.'s No. 1 Varnum, NW cor. SW SW Sec. 5-9-6 ..... Drilling 3,930 ft.
The Texas Company's No. 1 Keed, SW cor. SW Sec. 12-8-5 ..... Drilling 4,560 ft.
Twin S ate Oil Co.'s No. 1 Walker, NE cor. NE Sec. 5-7-6 ..... Rig on ground.
Simon & Bean's No. 1 Palmer, SE cor. NW NE Sec. 7-7-6 ..... Rigged up and shut down.
Reiter-Foster Oil Co.'s No. 1 Coat, SW cor. NW SW Sec. 14-7-6 ..... Rig on ground.
Indian Territory Illuminating Oil Co.'s No. 1 Marshall, NW NW SW Sec. 32-7-7 ..... Fishing 4,759 ft.
Magnolia Petroleum Co.'s No. 1 Vierson, SE SE NW Sec. 5-6-7 ..... Drilling 3,480 ft.

The Texas Company's No. 1 Reed, NE cor. NW NE Sec. 24-6-7 ..... Location abandoned.
Gardner Petroleum Co.'s No. 1 Unknown, NW cor. SE Sec. 36-6-7 ..... Drilling 2,869 ft.
Fuhrman Petroleum Co. and Superior Oil Co.'s No. 1 Davis, SW SW SE Sec. 3-10-6 ..... Location.

BECKHAM COUNTY

C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w ..... Shut down 3,800 ft.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w ..... Shut down 300 ft.

GRADY COUNTY

Remington and others' No. 1 Fryrear, SW SW NE Sec. 13-9-5w ..... Shut down 720 ft.; may start up soon.
Bedner and others' No. 1 Willis, C SW NW Sec. 13-7-5w ..... Shut down 2,450 ft.
Nichlos & Page's No. 1 Drake, SE NE SE Sec. 7-5-7w.... Shut down 1,900 ft.
Wirt Franklin Petroleum Co.'s No. 1 Garden, SE cor. SW NE Sec. 1-4-7w ..... Drilling 1,396 ft.
Commercial Development Co.'s No. 1 Chrisman, C NE NE Sec. 21-4-7w ..... Rigging up rotary.
Magnolia Petroleum Co.'s No. 1 Parsley, SE SW NW Sec. 8-4-6w ..... Drilling 3,364 ft.

M'INTOSH COUNTY

Marlone Oil Co.'s No. 1 Sanders, NW cor. NE SW Sec. 10-9-18 ..... Shut down 2,250 ft.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 16-7-1w ..... Drilling 2,975 ft.

KIOWA COUNTY

A. C. Varner and others' No. 1 Bonham, CSL NW NW Sec. 5-6-18w ..... Shut down 1,127 ft.

PONTOTOC COUNTY

Gillespie & Gant's No. 1 Taylor, SW SW SE Sec. 12-5-4.. Sand 2,818-52 ft., water; plugged back 2,570 ft., shot 80 and 20 quarts; swabbed 29 bbls.; shut down.
T. B. Slick's No. 1 Barnett, NE SE NW Sec. 13-5-6 .... Drilling 3,760 ft.
Sinclair Oil & Gas Co.'s No. 1 McDaniel, NE cor. NE Sec. 17-5-6 ..... Drilling 3,485 ft.
Mid-Continent Petroleum Corp.'s No. 1 Harjo, SE NE NE Sec. 14-5-7 ..... Drilling 2,495 ft.
T. B. Whitney and others' No. 1 Moore, SE SW Sec. 17-5-9 ..... Drilling 900 ft.
Winkler and others' No. 1 Tiner, C SW SE Sec. 31-5-9... Shut down 2,761 ft.
Dixie Oil Co.'s No. 1 Perkins, SE NW Sec. 15-4-1 ..... Drilling 4,480 ft.
R. F. Garland's No. 1 Strickland, SW NW SW Sec. 10-4-3 ..... Reaming 2,650 ft.
Marland Oil Co.'s No. 1 Lawrence, C SW SE Sec. 10-4-4.. Drilling 1,550 ft.
C. J. Shervin and others' No. 1 Wright, NW NE NE Sec. 12-4-6 ..... Shut down 1,925 ft.
Boles and others' No. 1 Rayburn, SW SE Sec. 35-4-6 .... Shu. down 1,340 ft.
J. E. Crosbie's No. 1 Nowabbi, SE NE SW Sec. 3-4-7..... Testing sand 1,044-54 ft., show oil.
Texas-Pacific Coal & Oil Co.'s No. 1 Stewart, C SW SE Sec. 11-5-5 ..... Drilling 1,945 ft.
Henry and others' No. 1 Gregg, SW SE NW Sec. 14-4-7... Shut down 1,090 ft.
Jolly-Gregg Oil Co.'s No. 1 Neeley, SE NE Sec. 24-2-10w.. Drilling 1,538 ft.
Oklahoma Portland Cement Co.'s No. 1 Mathews, C SW NW Sec. 24-4-7 ..... Drilling 880 ft., small show gas.

GARVIN COUNTY

Magnolia Petroleum Co.'s No. 1 Vaughn, NW SW NW Sec. 12-3-1 ..... Drilling 4,800 ft.
Heath & Bauman's No. 1 Hatfield, SW SE SW Sec. 10-3-3 ..... Shut down 1,640 ft.

COMANCHE COUNTY

Dixie Oil Co.'s No. 1 Perkins, SE cor. NW Sec. 15-4-1.... Drilling 4,665 ft.
Danciger & Ellis' No. 1 Spitler, NE cor. SE Sec. 10-2-10w. Abandoned 2,203 ft.
Ashcraft and others' No. 1 School Land, SE cor. SE Sec. 20-2-10w ..... Broken sandy lime 822-954 ft.; swabbed 3 bbls.; total depth 975 ft.; shut down; material moved ou..
Jenkins and others' No. 1 Smith, SW cor. SE SE Sec. 34-1-10w ..... Shut down 1,530 ft.
Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w.. Cleaning out 3,310 ft.

COAL COUNTY

Revels & Magee's No. 1 Labor, NW cor. NW Sec. 17-1-2.. Shut down 240 ft.
McGraw and others' No. 1 Patton, SW SE NE Sec. 35-1-8 ..... Shut down 973 ft.
Indian Territory Illuminating Oil Co.'s No. 1 Harris, SW cor. NW Sec. 10-1-11 ..... Fishing 1,630 ft.

OKLAHOMA PANHANDLE

CIMARRON COUNTY

Phillips and others' No. 1 Unknown, NW cor. NW Sec. 24-6-2 ..... Drilling 4,045 ft.
Sinclair Oil & Gas Co.'s No. 1 School Land, NW cor. NW Sec. 23-5-2 ..... Fighting cave 4,624 ft.
Ramsey Brothers' No. 1 School Land, NE SW SW Sec. 21-5-5 ..... Shut down 100 ft.
Ramsey Brothers' No. 1 Unknown, NW NE Sec. 27-5-5... Plugging back to show of oil 4,295 ft.
Ramsey Brothers' No. 1 School Land, SE SE Sec. 34-4-1.. Drilling 3,110 ft.
Gladys-Belle Oil Co.'s No. 1 Iserial, SW NE Sec. 25-3-7... Drilling 4,298 ft.
Valerius & Wilkinson's No. 1 Unknown, SE cor. NE Sec. 25-3-7 ..... Shut down 2,545 ft.
H. F. Wilcox Oil & Gas Co.'s No. 1 Zeal, NE SW Sec. 28-3-13 ..... Shut down 3,765 ft.
Skaer and others' No. 1 Mathis, SW NE NE Sec. 17-3-23.. Drilling 3,170 ft.
Ross Fenton and others' No. 1 Graves, NE NE Sec. 2-2-9.. Spudded and shut down.

TEXAS COUNTY

Danner Oil Co.'s No. 1 Graves, NE cor. SW SW Sec. 23-2-18 ..... Shut down 700 ft.
Newsom and others' No. 1 Allison, SE SE Sec. 4-1-12.... Shut down 4,040 ft.
Dotton and others' No. 1 Baker, C NW Sec. 4-1-13 ..... Rig blown down.
H. & H. Oil Co.'s No. 1 Hitch, NE cor. NE, Sec. 26-1-15... Shut down 600 ft.
Three Way Oil Co.'s No. 1 Cane, SW NW Sec. 11-1-18.... Hole full of water at 3,318-58 ft.; drilling.
Conley and others' No. 1 Unknown, SE cor. NW Sec. 5-1-19 ..... Spudded and shut down.
Texas County Gas Co.'s No. 1 Bacon, C NE NE Sec. 17-2-15 ..... Drilling 990 ft.

SOUTHERN OKLAHOMA

BRYAN COUNTY

Green Oil & Ref. Co.'s No. 1 Kemp, SE cor. NW NW Sec. 28-8s-9 ..... Shut down 600 ft.
Alexander & Oppenheimer's No. 1 Hampton, SE cor. NE Sec. 26-7s-11 ..... Shut down 1,425 ft.

JEFFERSON COUNTY

J. R. McCoy and others' No. 1 Smith, SE cor. NW Sec. 14-7s-6w ..... Rigged up and shut down.
W. Bassett's No. 1 Johnson, NE NW Sec. 15-6-8w ..... Location.
Amerada Petroleum Co.'s No. 1 Emerson, NW cor. SE SW Sec. 28-5s-8w ..... Location.

CHOCTAW COUNTY

Hugo Gay's No. 1 Smith, SE cor. SW NW Sec. 27-6s-16... Shut down 1,540 ft.
Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 16-6-19 ..... Shut down 1,346 ft.

TILLMAN COUNTY

A. N. Pearson's No. 1 Mounts, SW cor. SW Sec. 3-5s-15w.. Rig.
Fred Chopman's No. 1 Neif, NE cor. NW NE Sec. 11-5s-4 ..... Dry and abandoned 380 ft.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-16w ..... Shut down 2,250 ft.

MARSHALL COUNTY

Kennedy Drilling Co.'s No. 1 Sacra, SW NE SW Sec. 17-5s-5 ..... Dry and abandoned 1,810 ft.
Laurel Oil & Gas Co.'s No. 1 Chasine, SE NW Sec. 26-4s-5 ..... Shut down 3,145 ft.
Magnolia Petroleum Co.'s No. 2 Marshall, SW cor. NW SW Sec. 26-5s-7 ..... Drilling 200 ft.
Alter and others' No. 1 Brown, NE cor. NW NW Sec. 11-4-6 ..... Drilling 140 ft.

STEPHENS COUNTY

Pierce & Brown's No. 1 Garland, SE NW NE Sec. 34-2s-6w ..... Shut down 1,700 ft.

JOHNSTON COUNTY

McPherson and others' No. 1 Wyand, CSL NE NW Sec. 7-2s-9 ..... Shut down 4,440 ft.
Wapanucka Oil Co.'s No. 1 Banks, Sec. 28-2s-9 ..... Shut down 1,530 ft.

CARTER COUNTY

Grooms and others' No. 1 Morris, CSL NW NE Sec. 19-1s-2w ..... Shut down 3,462 ft.

MURRAY COUNTY

Thompson Oil Co.'s No. 1 Freeman, SE cor. Sec. 27-1s-2.. Rig.
Gilcrease Oil Co.'s No. 1 Wolf, SE cor. NE Sec. 20-1-2.... Spudded.

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

PREVENTING CASING COLLAPSE

I am a member of a small local company operating in this region. We have 14 wells altogether and for the third time we have run into casing trouble. In the latest case, our 8¼-inch casing collapsed at a depth of 2,650 feet. We used 32-pound casing. Maybe that is too light, but I know that kind of casing has been used in other fields for a greater depth than this well I speak of and I never heard of any trouble from it. I thought at first it might be that the well fluid was corrosive and attacking the pipe, but I can't find any real ground for the idea that corrosion is causing the trouble. Some of the other men in our company say the trouble is due to the light casing, and I am beginning to think that myself, but before we do anything toward trying to correct the difficulty I would like to have an opinion from your journal.—H. J. B.

Although it is rather unusual for 8¼-inch 32-pound casing to collapse at the depth you name, nevertheless it seems quite clear that your trouble is caused by using excessively lightweight casing. As you presumably know, fluid pressure and shifting formations will crush casing unless a weight sufficiently heavy to withstand them has been used. If you are familiar with good oil-field custom in this regard, you must recognize that you have departed from it by running your 8¼-inch 32-pound casing more than 150 feet deeper than the established practice prescribes. This practice is to use casing of such weight and size that its collapsing strength is twice the pressure exerted by a column of fluid of the same length as the casing.

A Bureau of Mines bulletin, "Manual for Oil and Gas Operations," by T. E. Swigart and C. E. Beecher, says with reference to the length of casing of given weight and size that will withstand the pressure of a column of water of equal length, with a safety factor of 2: "If a 3,300-foot hole is to have 8¼-inch casing the operator will find (by consulting a table accompanying the bulletin) that 8¼-inch 32-pound casing can only be used safely to depths of 2,478 feet or less; that 8¼-inch 36-pound casing can be used up to 3,033 feet; and that 8¼-inch 38-pound casing is safe for a 3,323-foot hole."

When seamless casing is used, add 20 per cent to the depths just enumerated, because of the additional collapsing strength of the seamless casing.

In the region where you and your associates are operating the formations are unusually soft and for this reason you should take extra precautions against using casing that is too light.

EFFICIENCY OF GAS LIFT

In a number of articles published in recent months I have noticed that where comparisons are made between the relative efficiencies of wells flowing naturally and by the gas lift it is claimed that those on the gas lift are more efficient. I haven't seen any clear explanation as to the reason for this contention. What is your opinion on this question?—D. V. C.

The reasons advanced for believing that a well flowing by the gas lift is operating more efficiently than one flowing naturally are as follows: Gas energy is necessary to force the oil through the sand toward the well and then into it. To produce this energy a differential pressure must be brought about between that existing back in the sand and that at the face of the sand in the well, with the movement of oil taking place in the direction of the lower pressure, which will be toward the well. With the reduction of the pressure at the face of the sand the gas back in the formation expands and the energy resulting from this expansion drives the oil toward the well.

Now if we assume that only sufficient differential pressure is maintained to flow the oil into the well it is clear that in order to raise the oil to the surface additional energy will be required. In natural flow, this energy must be furnished from the sand, consequently a greater differential pressure must be maintained. This results in a waste in gas energy as the gas energy could be better utilized in bringing additional oil to the well. By making sufficient energy available from some outside source, to lift the oil to the surface, no formation gas energy need be wasted. This means that the amount of formation gas produced with each unit of oil when the gas lift is used is less than that produced with natural flow.

As pointed out, some formation gas is produced in gas-lift operation. In actual practice, of course, the differential pressure referred to is not reduced to a minimum, but assuming that it is, there is still gas remaining in the oil after it enters the well, and as the oil rises in the flow tube, the gas is released because of decreasing pressure. Thus there is a constant release and expansion of gas from the oil and additional energy available for lifting the oil.

If the gas lift is properly installed and a minimum volume of formation gas is produced, it seems logical to believe that the above assumptions are correct. The daily oil production will be at least temporarily reduced, but a greater ultimate recovery should result.

RECOVERY FROM BARTLESVILLE SAND

What is the ultimate economic recovery per acre from the Bartlesville sand in Oklahoma and how much additional recovery may be expected by repressuring the sand?—K. P. L.

Answering the first part of your question, it is assumed that you mean the ultimate recovery obtained by the ordinary recovery methods which include natural flow, pumping and finally pumping under vacuum. Figures at hand show that the recovery per acre ranges from 1,500 to about 3,000 bbls. per acre with the average approximately 2,500 bbls. per acre. Greater recovery per acre figures have been reported in the Cushing Field. However, later development has shown that much of the production reported as coming from the Bartlesville sand was actually obtained from the Ordovician. Thus any estimates, based on Cushing Field production data, as to the ultimate recovery per acre from the Bartlesville sand, would be high.

As to the additional production which may be obtained from the Bartlesville sand by repressuring, 60 per cent as much oil as has been recovered by the ordinary production methods is assumed as a fair estimate of what may be recovered by repressuring. Naturally the quantity that may be recovered by repressuring is dependent upon the condition of the wells, the condition of the sand with respect to the amount of water that may be present and the methods used in repressuring. Some companies use those wells which take the gas or air most readily as input or key wells, whereas others will use wells which do not take the gas so readily, advocates of the latter method believing that it is best to drive the oil from the tight portions of the sand into the more porous and looser parts.

LENGTH OF PLUNGER TRAVEL

What is the actual plunger travel in an oil pump in a 4,000-foot well?—L. S. M.

With the wristpin in the third hole the length of stroke under good operating conditions is approximately 20 to 22 inches. Some doubt has been expressed as to the actual length of plunger travel in deep wells, on the assumption that owing to rod vibration, plunger travel did not exceed 8 to 12 inches with the wristpin in the third hole. A stroke of approximately 24 inches is obtained with the wristpin in the third hole. It is possible that plunger travel equal to the length of stroke has been obtained. Some actual measurements made by noting the wear in the pump barrels indicated a 20 to 22-inch travel.

CONCRETE STORAGE RESERVOIRS

How are concrete storage reservoirs made? I understand that many of this type of tank are used in California.—R. A. C.

You probably are referring to the large concrete-lined earthen reservoirs having capacities ranging from 300,000 to more than 2,000,000 bbls. The usual practice is to lay out the diameter and circumference of the reservoir on the ground. The sloping sides of the reservoir are then built up by excavating within the reservoir and using the excavated material to increase the height of the sides. Thus the bottom of the reservoir is below the original ground level and the top of the walls is above it. After the inner wall has been smoothed reinforcing is placed against it and the bottom. A layer of cement, usually 4 inches in thickness then is placed on the floor and on the inner wall. A slightly sloping roof is placed over the reservoir. It is supported by posts resting on the floor and by sills on top of the reservoir. Rain falling on the roof runs off through gutters and drains. Pipes penetrating the reservoir at or near the bottom provide entry and exit for the oil. Stairways are built on the inside and outside of the reservoir. Gauge openings and vents are built into the roof.

WILL A TANK-COVER PAY?

I have been running the oil on my property to a wooden tank open at the top. I checked up on the gravity and found that the gravity dropped only about 1 degree in one month. The oil is a low-gravity crude, running about 21 degrees. As it doesn't make any difference in the price I get for the oil, it seems to me it would be poor business to go to the expense of putting a cover on the tank. Yet we are told to put roofs on all tanks in order to cut down on losses by evaporation. What is your opinion on this?—L. G. A.

It is true that you would not be justified in placing a roof on your tank if you did not get a higher price for the higher gravity crude, provided your loss were in gravity only. However, there is always a volume loss accompanying any drop in gravity, and it would be advisable for you to check up on the volume loss to see if it would pay you to put roofs on your tanks. Of course, if you run your oil to pipe line every week, say, your loss would not be so great, as you say the gravity loss is 1 degree in one month. However, it is suggested that you run gravity tests oftener than once a month, as practically the entire loss might be taking place in the first week. As it is a simple matter to run gravities, it would be a good plan for you to take them every day until you have determined the period of greatest evaporation loss.

RATE OF EVAPORATION

We have under consideration a plan to erect storage tanks and store crude of about 41 gravity, for two years. Can you give us any figures showing the rate of evaporation per month for two years and the loss in gravity of the crude during that time?—M. O. C.

It is assumed that the crude will be stored in the latest-type all-steel storage tanks having a capacity of at least 55,000 bbls. If the tanks are of vapor-tight construction and the roofs are painted a light color, the evaporation losses probably would not exceed 1 per cent the first year and .9 per cent the second year. If the tanks are not painted a light color the loss probably would be .5 per cent higher.

You will note that the loss for the second year is estimated as almost as high as for the first year. This is because in a vapor-tight tank the crude at the end of the year is more volatile than it would have been if stored in an old-style tank not vapor-tight. The use of vacuum and pressure-release valves is assumed in these figures.

The average loss per month probably would be proportionate to the yearly loss. This is because the filling of the tanks presumably would cover a considerable period of time. Though the evaporation loss of those tanks filled during the summer months would show a gradual decline, the tanks filled during the late winter or early spring months probably would show an increase in the evaporation rate throughout the hot summer months immediately following.

The loss in gravity probably would not exceed 2 degrees the first year and 1½ degrees the second. This estimate probably is high.

There appears to be no way of estimating leakage losses, as they vary greatly. However, if the tanks are properly built and regularly inspected these losses should be negligible.

The losses caused by water, bs. and wax settling out depend of course upon the oil and can be determined by centrifuge tests as made by pipe-line gaugers. One-eighth of 1 per cent should be a liberal allowance.

When Bailer Bails are Jarred in Two

The HINDERLITER BAILER TUBE SOCKET is used to fish out of the hole, in one operation, bailers with broken bails.

The eccentric guide bowl compresses broken bail or bails.

Concave body effects passage through broken bail or bails into bailer.

Slips engage inside walls of bailer tube which is encased by the guide bowl.

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Liquid—Gas—Jacket Water
Shell-and-Tube, Atmospheric, and Condenser Box Types
OIL HEATERS
LEVEL CONTROLLERS

LA.-ARK. WILDCATS

(Continued from Page 51)

gumbo. Zwolle Oil & Gas Co.'s No. 6 Bowman-Hicks, Section 8-7-12, Sabine Parish, formerly L. M. Emlet's No. 6 Bowman-Hicks, is abandoned at 3,710 feet, being temporarily abandoned at that depth since last September. Interstate Natural Gas Co. abandoned No. 1 Parks, Section 23-20-3, Union Parish, on which it has had derrick up since last October, but never started drilling. It also abandoned No. 1 Stephenson, Section 6-21-4, Union Parish, without ever having built derrick.

Two efforts to prove or disprove Champagnolle extensions are being made. Magnolia Petroleum Co. has derrick pattern on location for No. 1 Cranston, in Section 19-17-14, 3 miles west and south of production; and Simon and others have derrick up for No. 1 Jerry, Section 21-17-14, 2 miles south of the nearest producing well.

NORTH LOUISIANA

Bossier Parish

H S. Goodwin tested dry at 2,650 feet with No. 2 Curtis, Section 36-17-13, and is drilling at 2,731 feet. Northwest Louisiana Gas Co. has resurrected No. 3 Bollinger, 660 feet south and west NE cor. Lot 28, Section 38-23-11, and cemented 4½-inch casing at 3,060 feet to test deeper horizons. The well was completed February 9, 1927, at 2,677 feet as a 15,000,000-foot gasser by Oil Fields Gas Co. of which Northwest Louisiana Gas Co. is the successor. Triangle Drilling Co. has made location 370 feet north and east of the center of Section 9-20-13, 4 miles north of Benton, for No. 1 Bulkley, and has derrick up.

Caddo Parish

Simmons & Harrell began drilling No. 1 Mattie Myer, Section 21-17-13, February 28, and have surface casing set at 100 feet. Greenwood Production Co's No. 1 Cooper & Ellerbe, Section 15-18-14, is shut down in shale at 3,238 feet waiting for heavier rig to go deeper. The Texas Company began drilling No. 5 Hutchinson, Section 15-15-12, February 26, and is down around 200 feet.

Catahoula Parish

Lochnager Oil & Gas Co.'s No. 3 Beasley, Section 26-9-6, is drilling at 2,250 feet.

Claiborne Parish

El Dorado Chief Oil Co.'s No. 1 Jones, Section 8-20-6, which rigged up last week after standing as a derrick since September, 1927, began drilling February 24 and is below 300 feet after setting 12½-inch surface casing at 89 feet.

DeSoto Parish

American Controlled Oil Co.'s No. 1 Lanier, Section 7-11-11, is drilling at 2,760 feet, deepening after getting 40 bbls. production at 2,735 feet and a long fishing job for cable tools after starting deepening. Baca Drilling Co.'s No. 1 Stevens, Section 12-11-16, has plugged back from 2,320 feet to 1,530 feet to test a show in the chalk rock. Benson Oil Co. has cemented 6⅝-inch casing in No. 2 Wolff, Section 3-10-13, at 2,870 feet. Dixie Oil Co.'s No. 1 Jenkins, Section 9-12-11, is pounding lime with cable tools at 6,124 feet, 34 feet deeper than any other hole in this territory has ever been drilled R. O. Roy's No. 1 Whitaker, Section 5-13-13, is shut down at 950 feet. The Texas Company's No. 5 Grand Bayou Planting Co., in Section 25-13-12, drilled deeper after successful completion two or three years ago at 2,415 feet, is bailing to test at 2,460 feet.

Franklin Parish

Louisiana Petroleum Co.'s No. 1 Tensas, Section 11-11-6, is shut down at 2,503 feet. It has been reported cleaning out after a show of gas at this level since February 1.

Grant Parish

W. D. Ball and others' No. 2 Calhoun, Section 4-7-4, is drilling at 230 feet. Swope and others' No. 5 fee, Section 18-9-1e, has 6-inch casing cemented at 1,549 feet.

Lincoln Parish

Lincoln Parish, one of the most active wildcat areas in north Louisiana during the Homer-Bull Bayou boom of 1919-21, but out of the picture since, is again in the field report with H. M. Harrell's No. 1 Griffin, 150 feet north and 660 feet east of SW cor. SE Section 17-19-1w, which is rigged up ready to drill.

Natchitoches Parish

Lawson & Pharis' No. 1 Crowell, Section 22-5-6, is shut down at 2,758 feet for fuel. They had a little gas around 2,400 feet but passed up and will go on deeper.

Richland Parish

Gulf Refining Co.'s No. 1 Millsaps, Section 8-17-6, is on a rock at 2,928 feet and No. 1 Ches Wymond, Section 20-18-6, is in hard lime at 2,470 feet. Moody & Seagraves' No. 1 McDonald, Section 9-15-5, is in shale at 2,342 feet. Noe & Meredith's No. 1 Boughton, Section 4-15-6, has 6-inch casing cemented at 2,286 feet. Oliver & Masters began drilling No. 1 Margie Hatch, Section 2-15-5, February 22, set 15½-inch surface string at 192 feet and 10 inch at 890 feet; No. 2 Hatch, Section 2-15-5, has 8-inch cecented at 2,285 feet. Ouachita Natural Gas Co.'s No. 1 Cummings, Section 24-17-5, is drilling on a rock at 2,373 feet. Woodley Petroleum Co. is down 1,560 feet with No 1 Osborn, Section 3-17-7.

Sabine Parish

W. G. Doerne has cemented 6-inch casing at 3,208 feet on No. 1 Pckering Lumber Co., Section 17-4-11. R. L. Gay has shut down No. 1 Mansfield Lumber Co. (third hole), Section 15-7-14, at 650 feet. Zwolle Lumber Co.'s No. 1 Bowman-Hicks (formerly L. M. Emlet's No. 7 Bowman-Hicks) milled out testing tool lost at 3,822 feet and is arranging to test 40 feet of broken sand at 3,840-80 feet.

Winn Parish

Ohio Oil Co.'s No. 2 Rolen, Account 1, Section 5-12-1w, was dry at 4,637 feet and is drilling at 4,640 feet, probable total depth 5,000 feet H. M. Roark's No. 3 Southern Minerals Co., Section 19-11-3w, is drilling streaks of lime and salt at 990 feet. Six and five-eighths inch casing was cemented at 935 feet with the bottom of the hole in sand but results of bailing have not been made known.

ARKANSAS

Bradley County

Johnson & Adams' No. 1 Southern Lumber Co., Section 12-12-12, is drilling gumbo at 2,675 feet.

Clark County

William Henry's No. 1 Clark, Section 34-9-21, standing as a derrick since December 10, has started drilling and with 10-inch surface casing set at 62 feet, is down below 700 feet. McKenzie Oil Co.'s No. 1 Eakin, Section 9-11-19, is shut down at 650 feet after a fresh water flow with a rainbow of oil.

Columbia County

George Dawley's No. 1 Grant, Section 12-17-22, began drilling February 23 and is below 1,000 feet with 12-inch surface string set at 80 feet.

Dallas County

Decman and others have made location and rigged up for No. 1 Hillman in the NW cor. SE NE Section 20-10-13.

Miller County

Bruton and others' No. 1 Red River Farms, Section 2-17-26, is drilling at 1,200 feet and Lenz and others' No 3 Dale, Section 23-15-26, is down 1,800 feet.

Union County

W. R. Keever started drilling No. 2-B Kavanaugh, Section 12-17-15, February 22 and is down 1,300 feet with 10-inch surface casing set at 42 feet. Lyell and others' No. 1 Stegall, Section 11-17-13, is coring at 2,160 feet. Magnolia Petroleum Co. has derrick up for No. 1 Cranston in Section 19-17-14; Rhodes and others began drilling No. 1 Union Saw Mill Co., Section 14-19-11, on March 1, and Simon and others have made location for No. 1 Jerry, 160 feet south and west NE cor. SE SW Section 21-17-14.

MISSISSIPPI

Alcorn County

Alcorn Petroleum Co.'s No. 1 Matthews, Section 14-2-7, is setting 8-inch casing at 57 feet to cut off fresh water flow. Previously reported setting 6⅝-inch at 694 feet.

Jasper County

Paulett & King's No. 1 Thigpen, Section 23-2-10, sht down at 922 feet. (No check on location, not previously reported.)

Lauderdale County

Lauderdale Oil & Gas Co.'s No. 1 Gunn, Section 13-7-16, cored base of Tuscaloosa at 3,165-80 feet; 3,196 feet no show; drilling.

Lee County

Moody & Seagrave's No. 1 Whitesides, Section 16-9-7, shut down below contract depth at 2,852 feet in Trenton lime with hole full of sulphur water, will be drilled deeper.

Monroe County

A. M. Sutton's No. 1 Acker, Section 25-13-19, casing seat 674 feet failed to hold fresh water flow, arranging to recement 8-inch casing at 678 feet. The Texas Company and Transcontinental Oil Co.'s No. 1 Day, Section 18-16-18, drilled into hard sand after salt water show at 3,006 feet; shut down, waiting orders.

ALABAMA

Lawrence County

Fidelity Oil & Gas Co.'s No. 1 Jacobs, Section 11-7-7 (no check, no previous report), rigging up. Lawrence County Leaseholders, Inc.'s, No. 1 Horton (no check, no previous report), shut down in Trenton lime at 1,520 feet, waiting orders. Greater Huntsville Oil & Gas Co.'s No. 1 Sandlin, Section 24-7-6 (no check, no previous report), drilling at 1,100 feet.

OKLAHOMA FIELDS

(Continued from Page 44)

Prairie:		
Cannon	1	8
Carter	1	15
Houck	1	5
Kincaid	5	80
Wiemer	1	
Pure:		
Aldridge	6	2,461
Roxana:		
Strother	4	2,741
Sinclair:		
Polly	4	1,820
Superior:		
Varnum	1	62
Texas:		
Fleet	1	40
Twin State:		
Varnum	2	420
Wilcox:		
Chupco	8	2,623
Total	70	18,169
Total Little River	99	33,946
Total Bowlegs	310	89,752
Total Earlsboro	286	105,933
Total Seminole	311	57,135
Total Searight	70	18,169
Total Maud	2	350
Grand Total	1,078	305,285

Carter County

The Texas Company is building the rig for No. 1 Woodward, SE cor. SW SE, Section 15-1s-3w. Atlantic Oil Producing Co. made location for No. 2 Eason, SE cor. NE SE, Section 19-1s-3w. Magnolia Petroleum Co. made location for No. 9 Hardin, SW cor SE NE, Section 19-1s-3w. Simpson-Fell Oil Co. is erecting the rig for No. 1 Winters, NW cor. SE SE, Section 19-1s-3w. Humble Oil & Refining Co. is putting up the rig for No. 3 Ratliff, SW cor NE SW, Section 20-1s-3w. Cox & Hamon's rig is being built for No. 1 Vorhees, SW cor. SE NW, Section 23-1s-3w. Simpson & Fell's rig is under construction for No. 4 M. Walker, SE cor. SW NW, Section 10-4s-2w.

Merrick-Camx Oil Co.'s No 2 Denny "B," SE cor. NW SW, Section 20-1s-3w, was completed for 110 bbls. in a series of sands at 2,988 feet to 3,446 feet. Humble Oil & Refining Co.'s No. 3 Spears, SW cor. NE NW, Section 29-1s-3w, is dry and abandoned at 3,463 feet. C. R. Smith's No. 1-B fee, SW cor. SE NE, Section 27-2s-3w, is making 5 bbls. from sand at 2,090-2,127 feet.

Hughes County

Magnolia Petroleum Co. is building the rig for No. 1 Reed (Riverbed), NW cor. SW NW, Section 17-5-8, Allen Pool. Catlett & Burk Greis Oil Co's rig is being built for No. 1 Oliphant, SW cor. NW NE, Section 18-9-9.

Muskogee County

J. L. Slusher has a machine at the location for No. 1 Nave, NE cor. SW NW, Section 20-15-20. Oaklana Drilling Co.'s No. 1 Jefferson, NE cor. SW NW, Section 21-14-15, is rigging. J. L. Dixon's No. 6 Callahan, CEL SW SE, Section 2-14-18, is spudding. J. D. Linthecum's No. 3 Kelley, SE cor. NW SE SE, Section 5-14-19, is spudding. P. H. Stein and others' No. 1 Cobb, SW cor. NE NW SW, Section 6-14-19, is drilling at 350 feet. M. S. Mussellem has the rig on the ground for No. 2 Evans, SE cor. SW SW SE, Section 32-14-19.

J. A. Swindler's No. 3 Thompson, NE cor. Section 17-15-15, is dry and abandoned at 1,726 feet. Holt & Ivey's No. 1 Cherry, NE cor. SW NW, Section 2-14-18, has been completed for 10 bbls. in sand at 1,282-90 feet. Hale-Ford Oil Co.'s No. 3 Clark, SW cor. SE NW SE, Section 6-14-19, made 63 bbls. from sand at 505-23 feet. Sioux Oil Co.'s No. 1 Bradshaw, NE cor. SE NW NE, Section 24-13-18, is a dry hole at 1,416 feet.

Okfuskee County

Amerada Petroleum Corp.'s No. 4 Palmer, SW cor. SE SW, Section 36-10-9, is drilling at 3,420 feet, being deepened from 3,395 feet to the Hunton lime. W. L Umbrum has the rig on the ground for No. 5 Tiger, CNL SE NW, Section 2-10-11. No. 2 Summer, NW cor. NE SE, Section 11-10-11, had 4,000,000 feet of gas in a sand at 745-52 feet. Jarvis & Holm and Winona Oil Co. made location for No. 1 Hen, SW cor. SE, Section 16-10-11.

Sands Petroleum Corp.'s No. 1 Johnson, SW cor. SE NE, Section 28-12-10, made a 30-bbl. well in Dutcher sand at 3,105-20 feet. Fuhrman & Shaffer Oil & Refining Co.'s No. 2 Simon, NW cor. Section 22-10-9, is dry and abandoned at 3,338 feet W. L. Umbrum's No. 2 Scott, CSL SE SE, Section 3-10-11, is dry and abandoned at 2,230 feet.

Okmulgee County

E. H. Jennings Oil Co. has the rig up for No. 3 Kimble, NW cor. NE NW, Section 23-15-11. W. B. Pine has a machine at the location for No. 3 Eubanks, SE cor. NE, Section 8-15-14. A. C. Saint and others' No. 1-A Warren, NE cor. SW NW, Section 12-14-12, had water in the Wilcox sand at 2,750-63 feet and plugged back to the Dutcher sand to test. Claypool and others' rig is up for No. 1 Bansk, NE cor NW SE, Section 5-13-12. W. B. Pine's No. 1 Henry, SE cor. NE NE, Section 30-12-13, is a rig on the ground to drill deeper from 1,212 feet. No. 1 Strip, SE cor. NE NW NW, Section 6-12-14, is an old well preparing to deepen from 1,746 feet. B. Morgan has the rig up for No. 2 S. Davis, CNL NE SE, Section 14-11-13.

Mid-Continent Petroleum Corp.'s No. 2 Willis, NE cor. NW, Section 22-16-12, has been completed for 25 bbls. in Dutcher sand at 2,129-42 feet G. D. Roberts' No. 6 Lee, NW cor. SE NE, Section 22-15-11, made 25 bbls. from Taneha sand at 2,113-40 feet. C. E. Campbell and others' No. 2 George, CSL NE SW, Section 2-15-12, is dry and abandoned at 2,566 feet. Penrod & Thompson's No. 1 Lowe, SW cor. NW SE NW, Section 12-14-12, has been abandoned at 2,172 feet. Riney & Williams' No. 3 Love, NE cor. SE SW, Section 9-14-14, is making 30 bbls. from sand at 1,244-57 feet. C. Jennings' No. 4 Gaither, NW cor. SE, Section 11-13-13, is a dry hole at 2,725 feet George McClain and others' No. 2 Sumsey, C NW NE, Section 33-13-14, was completed for 250,000 feet of gas in sand at 718-900 feet.

Pittsburg County

Quinton Spelter Co. is erecting the rig for No. 1 Perry, SE cor. Section 9-7-18.

Pontotoc County

Max Westheimer's No. 1-A Milner, SE cor. Section 8-5-8, is cleaning out at 817 feet with a show of oil. No. 2 Milner, SE cor. SW SE SE, Section 8-5-8, is a rig. Homaokla Oil Co. is building the rig for No. 3 Berry, SE cor. NE, Section 19-5-8, Allen Pool.

Conservative Oil & Gas Co.'s No. 1 Cox, SE cor. SW, Section 21-5-6, has been abandoned at 2,737 feet. American Oil & Refining Co.'s No. 7 Balcrop, SE cor. SW NW SW, Section 9-4-6, has been completed for 8,000,000 feet of gas in sand at 1,388-1,418 feet.

Pottawatomie County

Roxana Petroleum Corp. made location for No. 1 Jackson, NE cor. SE NE, Section 20-6-5. Independent Oil & Gas Co.'s No. 1 Light, SW cor. SE, Section 18-7-4, Pearson Pool, is flowing 130 bbls. from Hunton lime at 3,906-4,190 feet. Conti-

nental Oil Co.'s No. 2 Neghnguit, SW cor. SE NW, Section 19-7-4, made 235 bbls. from Hunton lime at 3,728-3,808 feet No. 4 Phillips, NW cor. NE SW, Section 19-7-4, swabbed 200 bbls. from Hunton lime at 3,709-95 feet.

Seminole County

Magnolia Petroleum Corp. is building the rig for No. 7 Hammond, NE cor. NW NE, Section 10-8-6, Bowlegs Pool. Sinclair Oil & Gas Co. has moved the rig out for No. 3 Cosar, NW cor. Section 36-8-6, Little River Pool. Pure Oil Co. has moved rig timbers out for No. 1 Harjo, NE cor. SW NE, Section 11-7-6, Little River Pool. Sinclair Oil & Gas Co. made location for No. 1 Teweek, NW cor. SW NE, Section 14-7-6. Magnolia Petroleum Co has the rig on the ground for No. 1 Reed, NE cor. SE NE, Section 22-7-6. E. W. Whitney made location for No. 1 Harjo, NE cor. NW NE, Section 25-7-6. The Texas Company has the rig on the ground for No. 3 Hyde, SE cor. NE SE, Section 7-5-8. The rig is up for No. 1 Hyde, NW cor. SE NW SW, Section 8-5-8. Louisiana Oil Refining Corp. made location for No. 4 Reed, NW cor. NE NE, Section 18-5-8, Allen Pool. W. R. Ramsey made location for No. 3 Culley, NE cor. SE NE, Section 18-5-8.

Mid-Continent Petroleum Corp.'s No. 5 Grayson, CEL W half SW SW, Section 34-10-6, Searight Pool, made 10 bbls. from Wilcox sand at 4,372-76 feet. Carter Oil Co.'s No. 4 Sango, NW cor. NE SW, Section 1-9-5, Earlsboro Pool, was completed for 650 bbls. in Wilcox sand at 4,332-37 feet. Gypsy Oil Co.'s No. 5 Sango, NW cor. SE, Section 1-9-5, had Wilcox sand at 4,280-4,301 feet and made 1,797 bbls. T. B. Slick and others' No. 1 Coker, NE cor. SW, Section 31-8-6, Little River Pool, is dry and abandoned at 4,595 feet. W. B. Pine and Phillips Petroleum Co.'s No. 2 Pattey, NW cor. SW NE, Section 35-8-6, topped Wilcox sand at 4,715 feet, drilled in to 4,724 feet and has been abandoned. The Prairie Oil & Gas Co.'s No. 1 Lumley, SW cor. NW SE, Section 10-10-5, has been abandoned at 4,780 feet in the Wilcox sand.

Beckham County

Magnolia Petroleum Co.'s No. 1 Baggett, NE cor. NW NW, Section 29-9-23w, has been completed for 9,000,000 feet of gas from sands at 2,597 feet to 2,700 feet.

Caddo County

Caddo Oil Co. has the rig up for No. 1 McKenna, SW cor NW NE, Section 5-5-9w. English & Bruce moved rig material out for No. 1 Prentice, NE cor. SW, Section 6-5-9w.

Jefferson County

Carter Oil Co.'s No. 5 Jones, SE cor. NW NE, Section 33-6s-5w, is rigging up rotary tools. Sigler & McGinley's No. 1 Pfile, NW cor. SE SW, Section 17-7s-5w, is rigging up a rotary outfit.

Creek County

H. U. Bartlett has the rig on the ground for No. 2 McIntosh, NW cor. Section 28-18-9. Sunray Oil Corp. has moved the rig out for No. 1-A Land, SW cor. NW SE, Section 7-18-12. Winemiller Oil Corp. has moved the rig to the location for No. 1 Abraham, NE cor. SW SW, Section 5-16-10. F. R Billingslea made location for No. 1-A Clinton, NE cor. SE NE, Section 21-15-9. Wilcox Oil & Gas Co. has the rig up for No. 3 Kimble & Reading, SE cor. NE NW, Section 18-14-10, Hall-Donnelly Pool. Burton-Springfield Oil Co.'s No. 1-A Strouvelle, NW cor. SE SE, Section 7-19-8, is rigging up. Gibson & Becker and others moved the rig out for No. 4 Tiger, SW cor. Section 17-17-1, Drumright Pool. Bu-Vi-Bar Petroleum Corp. made location for No. 3 Cain, SE cor. Section 18-17-7. Transcontinental Oil Co 's No. 2 Webster, SE cor. NE, Section 21-17-7, is drilling at 310 feet.

Regal Oil & Gas Co.'s No. 9 G. Lee, SE cor. Section 13-18-11, lost the hole at 1,905 feet and was abandoned. Kennedy & Horner and others' No. 1 Sapulpa Townsite, Lot 14, NW cor. NE NE, Section 26-18-11, made 60 bbls. from Dutcher sand at 1,929-42 feet. Henry & Avers' No. 2 Harris, SE cor. SW SE, Section 12-17-10, is making 20 bbls. from Red Fork sand at 1,894-1,929 feet. Wilcox Oil & Gas Co.'s No. 2 Kimble & Reading, NE cor. SE NW, Section 18-14-10, has been completed for 260 bbls. from Wilcox sand at 3,411-26 feet in the Hall-Donnelly Pool.

Grady County

Oklahoma Gas Utilities Corp.'s No. 4 Serrata, SW cor. NW NW, Section 25-5-8w, is drilling at 1,600 feet. American Drilling Co.'s No. 7 Sanford, C SW SW, Section 23-5-8w, is cementing surface pipe. Oklahoma Natural Gas Co. has the rig timbers on the ground for No. 4 Glover, NE cor. SE NE, Section 27-5-8w. Little Nick Oil Co.'s No. 5 McCaughtry, NW cor. Section 35-5-8w, is drilling at 900 feet. Magnolia Petroleum Co.'s No. 3 Heathley, SW cor. NW SE, Section 2-4-8w, is a location. J. J. Hall's No. 1 Wood, SW cor. NW, Section 12-4-8w, is drilling at 1,800 feet. Commerce Development Co.'s No. 2 Glover, SW cor. NE SW, Section 13-4-8w, is cementing surface pipe. The Texas Company's rig is up for No. 3 Glover, SW cor. SE NW, Section 13-4-8w. Twin State Oil Co.'s No. 1 Cox, C NE SE, Section 14-4-8w, is a rig up to deepen from 1,474 feet.

Magnolia Petroleum Co.'s No. 7 Farwell-Skervin, NW cor. SE SE, Section 23-5-8w, was completed for 13,000,000 feet of gas after setting 8-inch casing at 1,958 feet and drilling to 2,302 feet. Noble & Westerfelt's No. 5 McCaughtry, SE cor. NE NW, Section 35-5-8w, set 8-inch casing at 2,060 feet, drilled to total depth of 2,400 feet and made 15,000,000 feet of gas. Magnolia Petroleum Co.'s No. 3 Williams, SE cor. NW SW, Section 11-4-8w, made 3,000,000 feet of gas from total depth of 2,382 feet. Twin State Oil Co.'s No. 1 Pettit, C NW NE, Section 14-4-8w, topped gas sand at 2,180 feet, drilled to 2,350 feet and gauged 4,000,000 feet of gas. Carter Oil Co.'s No. 3 Woods, SE cor. NW NE, Section 17-3-5w, is flowing 80 bbls from sands at 2,530-37 feet and 2,547-50 feet. Amerada Petroleum Corp.'s No. 1 Pounds, SE cor. SW NE, Section 27-3-5w, has been abandoned at 1,695 feet.

Kay County

Royal Oil & Gas Co. made location for No. 2 Fulton, C SW NE, Section 12-28-1w, to drill for shallow gas. Industrial Oil & Gas Co. is rigging up a machine at C SE SE, Section 35-28-1w, to drill for shallow gas. Royal Oil & Gas Co.'s No 1 Courtney, NW cor. Section 8-27-1, is drilling at 830 feet.

Kiowa Oil & Gas Co.'s No. 5 School Land, NE cor. Section 36-29-1w, has been completed for 1,000,000 feet of gas in sand at 947-55 feet. Marland Oil Co.'s No. 3 White, C SW NW, Section 17-29-1, is making 30 bbls. from sand at 2,206-2,305 feet. Tidal Oil Co.'s No. 2 Cole, C SE SE, Section 18-29-1, has been completed for 12,500,000 feet of gas in sand at 1,434-67 feet. Harris & Haun's No. 1 Fulton, SW cor. NW, Section 30-29-1, is dry and abandoned at 1,293 feet.

Kiowa County

David Malernee has the rig up for No. 1 Van Kirkland, NW cor. Section 35-7-15w. Johnson McDowell is erecting the rig for No. 1, C SW NE, Section 6-6-15w. Blue Mountain Oil Co.'s No. 1 Jones, SE cor. NW NW, Section 17-5-14w, is fishing at 450 feet. Gould and others' No. 1 Patten, NW cor. SW SE, Section 17-5-14w, is drilling at 380 feet.

Logan County

Roxana Petroleum Corp.'s No. 1 Freelove, SW cor. Section 17-19-4w, made 2,306 bbls. from Wilcox sand at 6,082-92 feet. Mid-Continent Petroleum Corp.'s No. 1 Poston, SE cor. NW, Section 16-18-4w, has been completed for 25 bbls. gasoline in sand at 4,020-32 feet.

Noble County

Marland Oil Co and others' rig is moving in for No. 1 Kidd, NW cor. SW, Section 32-20-1w.

Osage County

Kewanee Oil & Gas Co. made location for No. 7, SW cor. NE SW, Section 34-27-6. Osage Gas Producers Co. moved a machine to the location for No. 386, NW cor. SW, Section 5-27-11. Kewanee Oil & Gas Co. is building the rig for No. 11, NE cor. NW NE, Section 3-26-6, Burbank Pool. The rig is also being built for No. 12, NW cor. NE NE, Section 3-26-6. The location has been made for No. 13, SW cor. NW NE, Section 3-26-6. Indian Territory Illuminating Oil Co.'s No. 6, NW cor. NE NE, Section 1-21-9, is an old well rigging up to deepen from 1,200 feet. Gardner Petroleum Corp. made location for No. 5, NW cor. Section 34-12-10.

Phillips Petroleum Co.'s No. 6, NW cor. NE SW, Section 17-27-6, had Burbank sand at 2,900-2,960 feet from which it swabbed 30 bbls. after a shot of 150 quarts. No. 6, SE cor. SW SW, Section 17-27-6, made 225 bbls. from Burbank sand at 2,890-2,955 feet. Kewanee Oil & Gas Co 's No. 4, NW cor. SE NE, Section 28-27-6, flowed 960 bbls. naturally from Burbank sand at 2,906-72 feet. No. 8, SW cor. NW NE, Section 28-27-6, had a production of 500 bbls. naturally from Burbank sand at 2,900-70 feet. No. 10, NW cor. SW NE, Section 28-27-6, was completed for 50 bbls. in Burbank sand at 2,903-67 feet. Osage Gas Producers Co.'s No. 385, SE cor. SW NW, Section 5-27-11, is shut in for 1,000,000 feet of gas in sand at 825-54 feet. Wah-Sha-She Oil Co.'s No. 1, CNL S half NE, Section 6-27-12, has been abandoned at 1,933 feet. Phillips Petroleum Co.'s No 1, SW cor. NW, Section 3-26-6, flowed 757 bbls. from Burbank sand at 2,770-52 feet. Carter Oil Co.'s No. 3, NE cor. NW SE, Section 3-26-6, had Burbank sand at 2,772-2,836 feet and made 120 bbls. No. 6, SE cor. NE SE, Section 3-26-6, was completed for 435 bbls. in Burbank sand at 2,731-2,811 feet.

Galt Brown Oil Co.'s No. 2, NE cor. SW, Section 3-26-6, drilled to the top of the Mississippi lime at 2,915 feet and has been abandoned. Petroleum Drilling Co.'s No. 21, NW cor. SW, Section 25-26-8, has been drilled deeper and completed for 30 bbls. in sand at 1,720-35 feet. Indian Territory Illuminating Oil Co.'s No. 1, SE cor. NE, Section 8-25-7, is dry and abandoned at 3,175 feet. Winona Oil Co.'s No. 1, CSL NE, Section 19-22-12, is dry and abandoned in Wilcox sand at 2,100-2,109 feet. The Prairie Oil & Gas Co.'s No. 2, SE cor. NE NE, Section 10-26-6, made 15 bbls. an hour from sand at 2,832-82 feet.

Payne County

Mulberry Oil Co. is rigging up No. 1 Ballard, C SW SW, Section 32-18-4, to drill deeper. Olean Petroleum Co 's No. 1 Peters, SE cor. NW SW, Section 24-18-5, is dry and abandoned at 3,900 feet.

Stephens County

Magnolia Petroleum Co.'s No. 7 Spears, NE cor. SE NW, Section 23-1s-5w, is drilling at 125 feet. Mudge Oil Co. made location for No. 7 Spears, NE cor. SE SE NW, Section 23-1s-5w. George Pace's No. 2 Allen, NW cor. NE, Section 3-2s-8w, is drilling at 1,039 feet. Beard & Cobb's No. 1 Dierkes, SW cor. NE NW, Section 13-2s-8w, is drilling deeper at 1,765 feet. Magnolia Petroleum Co. made location for No 1 Humphrey, SE cor. NE, Section 11-1s-4w. Max Westheimer made location for No. 1 Martin, NE cor. SE, Section 11-1s-4w. Magnolia Petroleum Co. made location for No. 3 M. Green, SE cor. SW NW, Section 13-1s-4w. Rig is being built for No. 4 M. Green, SW cor. SE NW, Section 13-1s-4w.

Magnolia Petroleum Co.'s No. 2 D. Bartley, NW cor. Section 20-1s-8w, made 20 bbls from sand at 2.270-80 feet. Pearce & Brown's No. 7 Wilkinson, SW cor. SE, Section 27-1s-8w, made 40 bbls. from sand at 1,670-82 feet. Hupp & Duff's No. 3 Burk, SW cor. NW NE, Section 34-1s-8w, has been completed in sand at 1,665-79 feet making 75 bbls. Mudge Oil Co.'s No. 2 Swanson, NW cor. SW SW NE, Section 23-1s-5w, is making 9 bbls. from sand at 641-59 feet. No. 3 Swan, NW cor. SW NE, Section 23-1s-5w, is making 5 bbls. from sand at 647-70 feet.

Tulsa County

The Texas Company has the rig on the ground for No. 1 Grayson, SW cor. NW NE, Section 28-19-10 Sand Springs Home's No. 2 Unallotted, CSL SE NE, Section 23-19-11, is spudding. Unger and others built the rig to deepen No. 4 Johnson, CWL NE NE, Section 36-19-11. Caldwell and others' No. 1 Hawkins, NW cor. SW, Section 18-19-12, is spudding. Hayden and others' No. 3 Futrell, SW cor. NW SW, Section 6-19-10, made 50 bbls. from Red Fork sand at 2,013-34 feet.

Wagoner County

A. K. Crichton's No. 2 Childers, CSL SW NW, Section 21-18-17, is drilling at 600 feet. Peterson & Young's No. 2 M. Jameson, NW cor. SE NW SW, Section 23-16-16, is drilling at 140 feet.

Bu-Vi-Bar Petroleum Corp.'s No. 2-A Tiger, CEL NE SE, Section 30-18-15, made a 15-bbl. well in sand at 1,225-33 feet. M. E. Johnson's No. 4 Lunnon, SE cor. NW NW, Section 14-16-16, has been completed for 2,500,000 feet of gas in sand at 825-35 feet after plugging back from 1,651 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 53)

ery is a range of igneous rock known as the Ferris Mountains. It is possible that this igneous uplift has resulted in an entirely different geological condition to the south of the range which will make exploration to the Pennsylvanian beds on a large number of structures very attractive. The fact that the quality of the oil is entirely different in the two general areas lends emphasis to this theory. The Producers & Refiners is said to have been about ready to abandon the East Ferris operation if the well had proven a failure. The field is producing around 1,000 bbls. a month from some shallow wells, but its remote location and the necessity of maintaining a separate camp prevented it from being a profitable operation in the shallow sands. There is considerable leasing activity already resulting from the strike and there is no doubt but that other tests to the horizon will be drilled.

West Salt Creek Test

An interesting showing of oil and gas is reported in the Mutual Oil Syndicate's test on the SW Section 3-39-79, on the western side of Salt Creek. The oil was encountered at 1,020 feet and considerable gas made its appearance at 1,050 feet. The well is being drilled on a major fault on the west side of Salt Creek, and the Shannon sand was found at 416 feet. Shale oil in that vicinity generally has been found below the Shannon at around 1,660 feet. It holds out favorable promise of production at around 2,000 feet. Possibilities of production along the fractured areas west of Salt Creek have long been considered favorable. About 10 years ago West Salt Creek was dotted with rigs, but the sand wells were not found worth while, and operations ceased except for occasional tests intended to pick up the shale oil from the faults.

New Mexico

Drilling operations in southwestern New Mexico are back to normal after having been slowed up for a few days by snow and cold weather. No completions were reported for the week, but two new locations were made. The Empire Gas & Oil Co. has made a location in the NW cor., Section 8-21s-35e, Lea County, about 15 miles north of the Mar'and Oil Co.'s No. 1 United States Permit in Section 20-23-35, and 10 miles east and a little north of J. S. Covert's No. 1 State in Section 15-21-33. The Marland well is just starting and the Covert well was abandoned recently at 4,434 feet with a hole full of water. The Empire location is in the general trend from the Rhoades well in southeastern Lea County towards the Maljamar Pool in eastern Eddy County, but a little to the east of a direct line between these two points. Snowden & McSweeney are preparing to drill a test in Section 27-15s-23e, in the southwestern part of Chaves County, on what is known as the Coontail structure. Location in the section has not yet been announced. The Snowden & McSweeney location for its No. 1 Lawrence, Section 35-20-29, in the vicinity of the Getty Oil, Inc. wells southeast of the Artesia Pool, has been changed from the NE cor. to the NW cor. of section being 300 feet each way from the corner. Materials are being moved in for this well. Some trading in leases is reported in the vicinity of the new tests. The Texas Production Co. has purchased a block north of its

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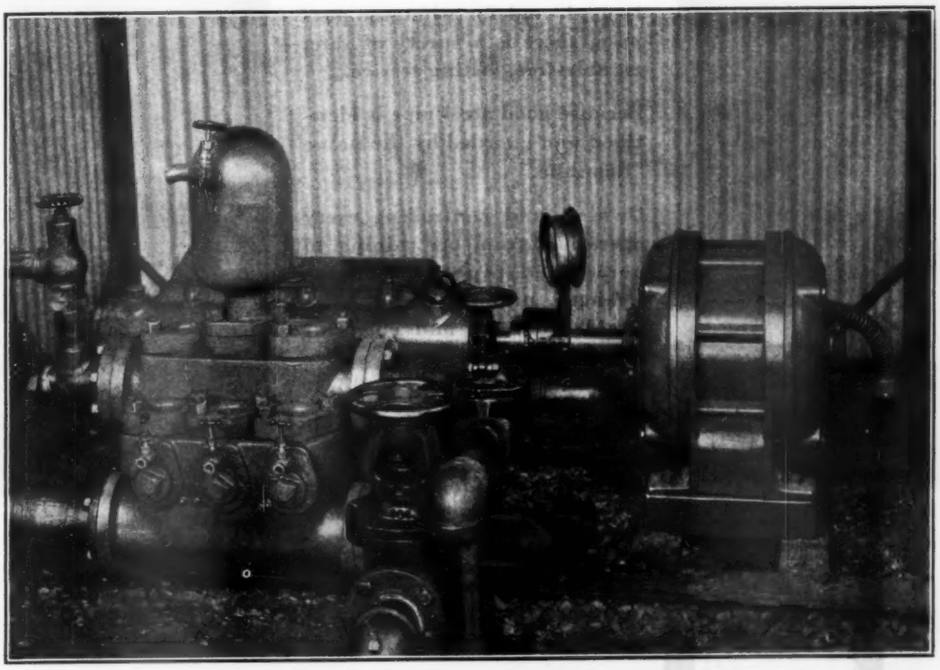

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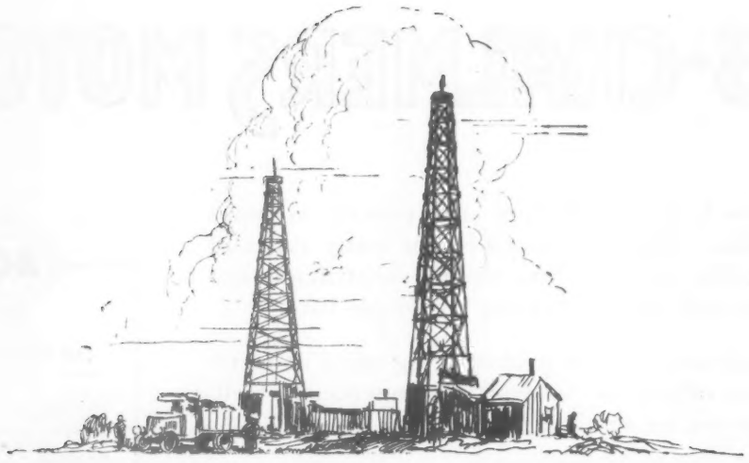

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discovery came in at 5,110 feet, but the Peterson well is lower on the structure and probably will have to go deeper. Same company's No. 1 Pollock, SE SE, Section 2-9n-79, had a show of gas at 4,780 feet. Newspaper dispatches from Wa'den said the flow amounted to 20,000,000 feet and that the gas was carbon dioxide like that in the discovery well, but these figures are grossly exaggerated. It really amounted to not much more than a good showing and was looked upon as a freak. It is hoped that this well will miss the carbon dioxide gas which in the discovery well freezes the oil as it comes out of the well. It is now drilling at 4,900 feet. Same company's No. 1 Hoye, SW NE, Section 34-9-78, on the south dome, the pioneer well at this depth, is drilling at 4,650 feet. It is believed to be close to the objective Muddy sand in the Dakota, and has had very encouraging showings at several horizons.

In Logan County, the Northeastern Colorado Oil Co.'s No. 1 State, Section 36-8n-55, Willard Dome, is still bottomed at 5,564 feet. The liner has been pressed down to the bottom of the hole and cleaning out is in progress. No samples of formation have yet been brought out and it is still uncertain as to what the showing of gas encountered before the hole commenced to cave amounts to. Apparently, there is no hurry to make new hole until expiring leases are renewed.

Montana

In Roosevelt County, eastern Montana, near the town of Poplar, a well was drilled eight years ago by the Pioneer Oil & Gas Co. to a depth of 2,870 feet. The well was found dry at that depth, and work stopped for lack of funds. Recently an examination was made, and the hole was found to be in excellent shape. Local people have organized a syndicate, and a diamond drill is now making hole to test to 3,500 feet.

The Baker - Barnhill - Corey gusher, which was a water well when first completed, is now shut in while a new tank battery is being placed. The 2-inch line to the Illinois Pipe Line Co.'s line is taking the crude from this well as fast as possible, but the production is greater than the pipe line can handle. Fourteen tanks are filled, and a large earthen reservoir and 12 new tanks are now being built. This big well is located on the SW of Section 9-34-1, and a 1 per cent royalty interest was sold in Great Falls this week for $10.000.

A de'egation from Montana attended the session of the Northwest Mining Congress being held at Spokane. Governor Erickson of Montana urged the mining men to unite with the oil operators and thereby make a stronger union of those interested in minerals. Other speakers from the oil fields of Montana urged the consideration of a gas line to carry natural gas from Montana to Spokane to supply that city with fuel for its domestic and power needs.

The Radigan Hungerford No. 7, on Section 7-34-1, was shot and will make a small producer of about 25 bbls. The Co-operative Petro'eum Co.'s No. 3 on the Adams tract is also a small well and is pumping about 15 bbls.

In the new Pondera Field, Pondera County, the Fulton well, on Section 16-27-4, has started work again and has set a string of casing at 1,750 feet with about 250 feet to go to reach the Ellis Madison contact. A completion is expected at this well in about two weeks.

The best strike of the past week is the California Co.'s Lorensen well in Sunburst, Section 28-35-2. This well started making gas from the Ellis and then changed to oil, and is now making about 700 bbls. daily. The same company has a 10-bbl. pumper on Section 27-35-2, and is drilling a deep test at 3,815 feet.

The Hardrock Oil Co. brought in a producer on Section 13-34-2 that will make 100 bbls., and also found a dry hole on Section 26-35-2 in No. 6 Abell.

The Ohio Oil Co.'s deep wildcat on the Dry Creek structure, Carbon County, Montana, is drilling after a short shutdown because of cold weather. The well is on Section 11-7-21, and the depth is 2,520 feet. This well is drilling with electric power, as one of the large transmission lines passes close to the location.

ROCKY MOUNTAIN PRODUCTION
Runs From the Field
Week Ending March 3

Wyoming	
Salt Creek	39,680
Big Muddy	2,700
Grass Creek	2,360
Elk Basin	1,020
Greybull	10
Dutton Creek	..
Rock River	2,670
Lance Creek	640
LaBarge	970
Mule Creek	....
Po'son Spider	200
Hamilton	1,220
Oregon Basin	380
Osage	380
Lander	700
Ferris	60
Byron	30
Lost Soldier	2,880
Simpson Ridge	30
Total Wyoming	55,930
Montana	
Cat Creek	1,800
Lake Basin	170
Kevin-Sunburst	10,020
Total Montana	11,990
Colorado	
Florence	1,181
Moffat	1,135
Fort Collins	3,219
Iles Dome	1,219
Rangely	100
Tow Creek	385
Boulder	25
Total Colorado	7,264
New Mexico	
Rattlesnake	115
Hogback	530
Cap Rock	231
Table Mesa	230
Artesia	1,268
Total New Mexico	2,374
Total Rocky Mountain	77,558

One Completion and Three New Tests in East Central Texas

MEXIA, Tex., Mar. 3.—One completion and three new operations are reported from the East Central Texas area in the past week in review. In the Cedar Creek Pool, Limestone County, the Transcontinental Oil Co.'s No. 2 R. P. Ward was completed as a 150-bbl. initial producer on the swab. The garvity of the oil is 36.2 degrees. The new operations include Alexander & Lile's test, No. 1 J. L. Boyd, Sanchez Survey, No. 4, Freestone County, where rotary was being rigged up; Wheelock & Collins and others' No. 1 T. E. Boyd, Bragg Survey, Navarro County, rigging up rotary, and the Humble Oil & Refining Co.'s No. 1 J. H. Pruitt, Henderson Survey, in Smith County, a derrick completed.

In Anderson County the Humble Oil & Refining Co. was drilling below 1,800 feet in No. 1 Tom Jones, Robert Survey.

In Kaufman County Barney Carter's No. 1 McMasters was waiting for casing to set at 2,681 feet. The log shows soft sand at 2,664-67 feet; shale at 2,667-70 feet; hard sand at 2,671-81 feet, total depth.

In Limestone County, W. G. Harrison and others were fishing for liner at 2,960 feet. The hole tested dry at 2,956 fet and will be drilled deeper. Hunt and others were waiting for casing to set at 2,960 feet in No. 1 Williams, on the Varella Survey. W. L. Forbes and others have derrick up for No. 1 J. M. Tidwell, Varella Survey. Dillon & Hammond were shut down at 2,931 feet in No. 1 Fenner, Hoskins Survey.

In Navarro County, O'Byrne and others were drilling below 2,300 feet in No. 1 Hamilton, Rahm Survey.

In Smith County, the Humble Oil & Refining Co. had a bad fishing job in No. 1 Hoovenburg & Anderson, Nancy Childs Survey. The hole had reached a depth of 550 feet, in anhydrite and caved badly. About 350 feet of casing was set but the caving hole made drilling impossible. The Gulf Production Co.'s No. 1 McCommond, Vincent Moore Survey, was drilling at 666 feet in shale and boulders after 551 feet of 10-inch surface casing was set.

CHARLES H. COOK DEAD

BRADFORD, Pa., March 3.—Charles H. Cook, veteran driller, died suddenly at his home here. He was 69 years old and had been engaged in the oil business since the early days of the Bradford Field.

MORE WELLS COMPLETED BUT LESS PRODUCTION

(Continued from Page 31)

Chautauqua and Elk	5	210	1	1
Greenwood	24	2,295	6	0
Sumner	16	7,149	0	1
Miscellaneous	28	324	14	4
Total, February	94	10,615	34	10
Total January	137	14,337	47	11
Difference	43	3,722	13	1

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Butler	5	15	20
Chautauqua and Elk	2	10	12
Cowley	7	31	38
Greenwood	17	24	41
Marion	5	33	38
Russell	6	6	12
Sumner	15	32	47
Miscellaneous	9	54	63
Total February	66	205	271
Total January	63	185	248
Difference	3	20	23

GULF COAST
Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Batson	2	13	6	0	2	1	3
Big Creek	2	800	0	0	3	3	3
Boling	13	300	12	0	0	7	7
Blue Ridge	5	1,140	1	0	2	12	14
Barber's Hill	2	0	2	0	0	1	1
Dayton	1	0	1	0	0	0	0
Edgerly (La.)	0	0	0	0	0	5	5
Goose Creek	2	42	0	0	0	6	6
Hull	6	970	0	0	1	7	8
Humble	0	0	0	0	0	0	0
High Island	3	650	1	0	0	4	4
Jennings (La.)	2	0	2	0	1	3	4
Lockport (La.)	2	50	1	0	1	4	5
Markham	1	200	0	0	0	2	2
Nash	2	2,196	0	0	0	6	6
Orange	6	424	4	0	0	7	7
Orchard	0	0	0	0	0	1	1
Pierce Junction	6	3,040	2	0	2	15	17
Saratoga	1	8	0	0	0	1	1
Sour Lake	2	10	1	0	1	3	4
Spindletop	17	17,065	4	0	0	19	19
South Liberty	1	2,500	0	0	0	3	3
Starks	1	0	1	0	0	1	1
Vinton	2	90	0	1	0	4	4
West Columbia	0	0	0	0	0	1	1
Miscellaneous	24	11,154	17	0	21	48	69
Total Feb. 1	163	40,652	49	1	31	165	196
Total Jan. 1*	100	36,870	43	1	51	165	216
Difference	3	3,782	6	0	20	0	20

*Includes 10 Boling completions not recorded in previous January report.

NORTH LOUISIANA
Summary of Field Operations

	Comp.	Prod.	Dry	*Gas	Rigs	Drg	Ttl
Blenville	1	0	0	1	2	3	3
Bossier	6	30	1	4	3	18	21
Caddo	†10	405	5	0	9	20	29
Caldwell	0	0	0	0	0	1	1
Catahoula	0	0	0	0	2	2	4
Claiborne	1	0	1	0	1	1	2
DeSoto	1	0	1	0	2	9	11
Franklin	1	0	1	0	0	2	2
Grant	2	0	2	0	0	3	3
LaSalle	1	0	1	0	0	2	2
Monroe District	9	0	2	7	10	16	26
Natchitoches	0	0	0	0	0	1	1
Rapides	0	0	0	0	0	2	2
Red River	1	30	0	0	0	1	1
Richland	8	0	2	6	6	15	21
Sabine	2	20	1	0	1	7	8
Webster	4	0	0	4	8	11	19
West Carroll	0	0	0	0	0	1	1
Winn	0	0	0	0	0	2	2
Total Feb.	47	485	17	22	43	116	159
Total Jan.	39	644	17	11	48	123	171
Difference	8	159	0	11	5	7	12

†One well also producing gas.
*Gas production: Caddo, 2,000,000; Bossier, 121,000,000; Monroe district, 72,080,000; Richland, 287,872,290; Webster, 18,500,000; total, 501,452,290.

ARKANSAS
Summary of Field Operations

	Comp.	Prod.	Dry	*Gas	Rigs	Drg	Ttl
Bradley	0	0	0	0	0	1	1
Clark	0	0	0	0	1	1	2
Clay	0	0	0	0	0	1	1
Columbia	1	0	1	0	2	2	4
Faulkner	0	0	0	0	0	1	1
Franklin	0	0	0	0	0	1	1
Garland	0	0	0	0	0	2	2
Grant	0	0	0	0	0	1	1
Jackson	0	0	0	0	0	1	1
Lincoln	0	0	0	0	0	1	1
Little River	0	0	0	0	0	1	1
Logan	0	0	0	0	1	0	1
Lafayette	1	0	1	0	0	0	0
Miller	0	0	0	0	0	2	2
Nevada	1	50	0	0	0	5	5
Ouachita	2	0	1	1	0	2	2
Pike	0	0	0	0	0	2	2
Poinsett	0	0	0	0	0	1	1
Pope	0	0	0	0	0	1	1
Union	10	889	5	0	9	17	26
Woodruff	0	0	0	0	0	1	1
Total Feb.	15	939	8	1	13	44	57
Total Jan.	34	2,840	24	2	20	48	68
Difference	19	1,901	16	1	7	4	11

*Gas production 3,000,000.

MISSISSIPPI
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg	Ttl
Alcorn	0	0	0	0	0	1	1
Chickasaw	0	0	0	0	0	1	1
Claiborne	0	0	0	0	0	1	1
Hines	0	0	0	0	0	1	1
Itawamba	0	0	0	0	1	0	1
Jeff Davis	0	0	0	0	0	1	1
Lauderdale	0	0	0	0	1	1	2
Lee	0	0	0	0	0	2	2
Monroe	0	0	0	0	0	1	1
Rankin	0	0	0	0	0	1	1
Stone	0	0	0	0	0	1	1
Webster	0	0	0	0	0	1	1
Total	0	0	0	0	2	13	20

EAST TEXAS
Summary of Field Operations

	Comp.	Prod.	Dry	*Gas	Rigs	Drg	Ttl
Cass	1	0	1	0	0	1	1
Harrison	5	0	1	4	1	4	5
Marion	0	0	0	0	0	1	1
Panola	5	0	1	4	1	8	9
Shelby	1	0	1	0	0	1	1
Total Feb.	12	0	4	8	2	15	17
Total Jan.	15	15	2	12	6	19	25
Difference	3	15	2	4	4	4	8

*Gas production: Panola, 12,510,000; Harrison, 12,000,000; total, 24,510,000.

EAST CENTRAL TEXAS
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Anderson	2	85	1	0	0	1	1
Limes one	2	0	2	0	1	4	5
Navarro	2	0	2	0	0	1	1
Smith	0	0	0	0	1	1	2
Freestone	1	0	1	0	0	0	0
Kaufman	0	0	0	0	0	1	1
Total Feb.	7	85	6	0	2	8	10
Total Jan.	4	125	3	0	0	11	11
Difference	3	40	3	0	2	3	1

WEST TEXAS FIELDS

County—	Comp.	Prod.	Dry	Gas
Andrews	1	0	1	0
Crane	8	1,775	1	0
Crockett	2	0	1	1
Culberson	1	0	1	0
Fisher	2	280	1	0
Howard	10	4,288	3	1
Jones	5	200	3	0
Mitchell	1	105	0	0
Nolan	2	0	2	0
Pecos	31	129,664	5	0
Reagan	2	35	1	0
Reeves	1	0	1	0
Shackelford	1	0	1	0
Taylor	1	0	1	0
Upton	1	0	1	0
Winkler	32	86,504	1	0
Total W. Tex., Feb.	102	222,851	25	2
Total W. Tex. Jan.	82	336,962	14	1
Difference	20	114,111	11	1

TEXAS PANHANDLE

County—	Comp.	Prod.	Dry	Gas
Carson	1	0	0	1
Gray	14	8,092	0	2
Hutchinson	9	1,122	0	0
Hartley	1	0	1	0
Wheeler	1	0	0	1
Total Pan., Feb.	26	9,214	1	4
Total Pan., Jan.	18	6,690	1	5
Difference	8	2,524	0	1

NORTH CENTRAL TEXAS

County—	Comp.	Prod.	Dry	Gas
Archer	22	273	11	0
Brown	36	1,925	17	3
Callahan	8	179	4	1
Coleman	10	723	4	1
Comanche	2	0	2	0
Cooke	4	18	2	0
Eas land	17	3,153	5	3
Grayson	1	0	1	0
Haskell	1	0	1	0
Jack	14	100	11	0
Montague	11	330	4	0
Palo Pinto	1	0	1	0
Shackelford	16	1,493	5	1
Stephens	6	430	3	0
Throckmorton	11	330	4	0
Wichita	67	1,127	14	0
Wilbarger	17	881	5	0
Young	25	327	14	0
Total N. Cen., Feb.	269	11,289	108	9
Total N. Cen., Jan.	179	7,813	83	9
Difference	81	3,476	25	0

SOUTHWEST TEXAS FIELDS
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Mirando	10	150	3	4	3	25	28
Luling	3	127	0	0	1	3	4
Kingsville	-	....	..	..	1	3	4
Refugio	12	....	7	5	0	9	9
Adams Field	1	....	0	1	0	1	1
Dale Field	1	150	0	0	0	1	1
White Point	11	....	5	6	4	5	9
Misc.	17	4	15	1	8	76	84
Total Feb.	55	431	30	17	17	123	140
Total Jan.	41	980	25	8	24	151	175
Difference	14	549	5	9	7	28	35

TEXAS PANHANDLE
Summary of Rigs and Wells Drilling
February, 1928

County—	Wells Rigs	Wells Drg.	Wells S.D.	Wells Ttl.
Carson	2	4	1	7
Gray	11	56	8	75
Hutchinson	4	13	3	20
Wheeler County	6	9	2	17
Misc. Counties	3	16	31	50
Total Feb.	26	98	45	169
Total Jan.	45	76	50	171
Difference	19	22	5	2

NORTH CENTRAL AND WEST TEXAS
Summary of Rigs and Wells Drilling
February, 1928

County—	Wells Rigs	Wells Drg.	Wells S.D.	Wells Ttl.
West Texas—				
Crane	3	6	2	11
Crockett	5	4	4	13
Howard	9	25	4	38
Jones	5	2	2	7
Mitchell	..	2	2	4
Pecos	31	28	16	75
Reagan	8	8	10	26
Runnels	5	8	3	16
Upton	4	1	3	8
Winkler	35	92	10	137
Misc. Counties	15	37	41	93
West Texas total, Feb.	118	213	97	428
North Central Texas—				
Archer	7	17	3	27
Brown	8	38	10	56
Callahan	10	9	8	27
Coleman	1	29	20	50

(Continued on Page 92)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 39)

Gulf Prod. Co.'s No. 4 J. B. Bowers, SE SW SW, Gulf lease in Sec. 89, Blk. B-2 ..... Drlg. gyp., 2,025 ft.
Gulf Prod. Co.'s No. 5 J. B. Bowers, SW SE SW, Gulf lease in Sec. 89, Blk. B-2 ..... Set 15½-in., 528 ft; drlg. lime, 2,365 ft.
Gulf's No. 2 Holmes, SE cor. NE, Sec. 107, Blk. 3, I. &G.N. Sur. ..... Drlg. lime, 2,880 ft; 25,000,000 ft. gas, 2,870-80 ft; set 6-in. csg., 2,909 ft; flowing 30 bbls. every 10 hrs. from granite wash at 3,062 ft.
Gulf Prod. Co.'s No. 1 M. Davidson-A, 330 ft. from S. and E lines of NW cor. E half NW, Sec. 87, Blk. B-2, H.&G.N. Sur. ..... Drlg. red shale, 2,805 ft; 5,000,000 ft. gas, 2,790-2,800 ft.
Gurnsey Oil Co.'s No. 2 B. E. McKinney, Sec. 163, Blk. 3, I.&G.N. Sur. ..... Show oil, 3,025-30 ft; fish., 3,084 ft.
Hardendorf Drlg. Co.'s No. 1 G. A. Henderson, NE E half NE, Sec. 47, Blk. 25, H.&G.N. Sur. ..... Run. 10-in. csg., 590 ft; S.D.
McAuley et al's No. 1 Morse, SE cor. N half, Sec. 3, Blk. 26, H.&G.N. Sur. ..... S.D., 1,700 ft. for repairs.
Majestic Oil Co.'s No. 4 J. B. Bowers, SW cor. E half, Sec. 92, Blk. B-2 ..... Drlg. red rock, 3,735 ft.
Majestic Oil Co.'s No. 6 J. B. Bowers, Sec. 89, Blk. 2-B. Drlg. hard G.W., 3,735 ft.
Magnolia Pet. Co.'s No. 1 J. Bowers ..... Made 400 bbls. daily from G.W., 2,853-55 ft; T.D., 2,875 ft; to D.D.
Magnolia Pet. Co.'s No. 1 J. J. Wall, NE cor. Sec. 162, Blk. 3, I.&G.N. Sur. ..... S.O.&S.G., 3,190-3,202 ft; show oil, 3,335 ft; C.O.
Midwest Explin. Co.'s No. 1 L. Holmes, Sec. 86, Blk. 3, I.&G.N. Sur. ..... Show 43 grav. oil in G.W., 3,110-12 ft; cmt. 8-in., 3,015 ft; swbd. 58 bbls. in 6 hrs., 3,135-36 ft; swbd. 121 bbls. 24 hrs., 3,135-3,251 ft; to D.D.
Operators Oil Co.'s No. 2 W. Jackson, NW cor. N ½ NE, Sec. 88, Blk. B-2 ..... Drlg., 2,135 ft.
Osborn et al's No. 1 E. E. Barrett, SE cor. NE, Sec. 111, Blk. 3, I.&G.N. Sur. ..... Rig.
Phillips Pet. Co.'s No. 1 Davidson (Myson) ..... Drlg., 2,880 ft.
Phillips Pet. Co.'s No. 2 Davidson (Myson), NE cor. NW NW, Sec. 87, Blk. B-2, H.&G.N. Sur. ..... Drlg., salt, 1,240 ft.
Phillips Pet. Co.'s No. 3 W. Jackson ..... Show gas, 2,572-2,600 ft; cmt. 3-in. csg., 2,834 ft; C.O., 2,860 ft; T.D., 2,873 ft.
Phillips Pet. Co.'s No. 3 Jackson-Riley, Sec. 88, Blk. B-2, H.&G.N. Sur. ..... Recmntd. 12½-in., 1,027 ft; drlg., 2,710 ft; 6,000,000 ft. gas, 2,590-2,635 ft.
Phillips Pet. Co.'s No. 4 Jackson-Riley, SE cor. W half SW, Sec. 88, Blk. B-2 ..... Fish., 310 ft.
Pampa Oil Co.'s No. 1 W. R. Campbell, Sec. 90, Blk. 3. 700 ft. wtr., 3,430 ft; S.D., 3,422 ft.
Purple Sage Oil Co.'s No. 2 E. B. Johnson ..... S.D., 1,980 ft.
Ray & Massie's No. 1 A. Chapman, NE NW SW, Sec. 51, Blk. 25 ..... Show oil, 2,679-90 ft.
Rensaul Pet. Co.'s No. 2 M. Huselby, NE cor. SW, Sec. 55, Blk. 25, H.&G.N. Sur. ..... T.L., 1,675 ft; set 8¼-in., 1,851 ft; drlg., 2,268 ft; 2,000,000 ft. gas, 2,185-2,205 ft.
St. Clair Oil Co.'s No. 1 C. H. Rowe ..... Spud. and S.D.
St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.
Shamrock Oil Co.'s No. 1 Chapman, NE E half SW, Sec. 50, Blk. 25 ..... 5,000,000 ft. gas, 2,660-70 ft; T.D., 2,680 ft; cmt. 6-in. csg., 2,655 ft; S.D., 2,680 ft.
Skelly Oil Co.'s No. 1 Bradford, NE cor. Sec. 118, Blk. B-2, H.&G.N. Sur. ..... 12,000,000 ft. gas, 2,765 ft; S.D., 2,775 ft.
Spartan Oil Co.'s No. 1 J. Hopkins ..... Spud. and S.D. for water.
Sullivan et al's No. 1 A. Chapman-A ..... 23,000,000 ft. gas, 2,280-2,300 ft; S.O., 2,345-50 ft; drlg., 2,578 ft.
Sullivan et al's No. 1 S. A. Cobb, NE cor. NW, Sec. 64, Blk. 25, H.&G.N. Sur. ..... Building rig.
Sullivan Oil Co. et al's No. 1 M. Huselby, NW cor. E half NW, Sec. 55, Blk. 25, H.&G.N. Sur. ..... Location.
Sun Oil Co.'s No. 1 Jackson ..... Top lime, 2,035 ft; to rerun 6-in., 2,950 ft.
Staggers Oil Co.'s (was Ruby Oil Co.'s) No. 1 B. F. Tally. T.D., 635 ft; S.D.
The Texas Co.'s No. 2 J. B. Bowers ..... Show gas, 2,810 ft; show oil, 2-820 ft; S.D., 3,206 ft. to plug back for gas.
The Texas Co.'s No. 3 J. B. Bowers ..... Fish., 2,765 ft; 44,000,000 ft. gas.
The Texas Co.'s No. 4 J. B. Bowers, SE cor. SE, Sec. 93, Blk. B-2 ..... Cmtd. 8¼-in. csg., 2,108 ft; drlg., 2,353 ft.
The Texas Co.'s No. 2 H. M. Davis, SW cor. NW, Sec. 86, Blk. 3 ..... Set 8¼-in., 2,150 ft; cmt. 6-in., 3,050 ft.
The Texas Co.'s No. 1 M. B. Davis, SE cor. NE, Sec. 8, Blk. 1, A.C.H.&B. Sur. ..... Drlg., 605 ft.
The Texas Co.'s No. 1 S. McLarty-A, SW cor. E ½ NW, Sec. 1, Blk. 1, A.C.H.&B. Sur. ..... Making 40,000,000 ft. gas; spraying 80 bbls. oil daily, 2,410 ft.; may D.D.
The Texas Co.'s No. 1 S. McLarty ..... T.L., 1,712 ft; drlg. 2,360 ft.
Tobias Oil Corp.'s No. 1 W. H. Taylor, C NE, Sec. 10, Blk. B-2 (formerly Smallwood et al's) ..... Rig burned; 835 ft; rebldg.
The Texas Co.'s No. 1 C. Thut, C N half of E 320 A. Sec. 1, H.&G.N. Sur. ..... 10,000,000 ft. gas, 2,436-40 ft; drlg. plug, 2,735 ft.
The Texas Co.'s No. 1 M. B. Davis, SE cor. NE, Sec. 8, Blk. 1, A.C.H.&B. Sur. ..... Drlg., 600 ft.
The Texas Co.'s No. 2-A Chapman, NE cor. NW NW, Sec. 51, Blk. 25, H.&G.N. Sur. ..... Drlg., 835 ft.
The Texas Co.'s No. 2 Chapman-B, Sec. 51, Blk. 25, H.&G.N. Sur. ..... Rig.
The Texas Co.'s No. 1 J. E. Williams, NW cor. NE NW, Sec. 7, Blk. 1, A.C.H.&B. Sur. ..... Building rig.
Viola Oil Corp.'s No. 1 G. H. Saunders ..... Drlg., 500 ft.

HALE COUNTY

Bailey & Young's No. 1 Thomas, Sec. 1, Blk. J.K.L. ..... S.D., 175 ft.
Donnell Pet. Co.'s No. 2 Mullican, NW cor. Sec. 66, Blk. A-3, I.&S.B. Sur. ..... Top pay in sandy shale, 495 ft; ½ bailer oil and 3 bailers wtr. per day; S.D., 620 ft.
Donnell Pet. Co.'s No. 1 Mullican, C Sec. 21, Blk. B, R. M. Thompson Sur. ..... 200 ft. fluid in hole from 407-14 ft; S.D.
Explin. Co.'s No. 1 Crawford, C NE, Sec. 17, Blk. C-3, T.T.R.R. Sur. ..... Spudded and S.D.
Explin. Co.'s No. 1 Goodman ..... S.D., 350 ft.
A. S. Mimm's No. 1 W. A. Ritcher, 700 ft. from east line and 1,200 feet from south line, Sec. 17, Blk. X, John Glynn Sur. ..... S.D., 1,140 ft.
Tolbert & Simms' (was Gouldy & Stone's) No. 1 Kitteral, SE cor. NW, Sec. 65, Blk. A-3, G.C.&S.F. Sur. S.D., 485 ft.

HALL COUNTY

Briscoe Oil Assn's (was Seifert et al's) No. 1 Owens, C NE, Sec. 179, Blk. S-5, Dennison & Pacific Sur. Spudded and S.D.

HANSFORD COUNTY

Caldwell et al's No. 1 J. Adriance est. ..... S.D., 1,020 ft. (corrected depth).
Oklavania et al's No. 1 Coots, Sec. 13, Blk. 45, H.&T.C. Sur. ..... Cmt. 10-in. csg., 990 ft; S.D., 1,100 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood ..... S.D., 1,455 to install rotary.

HARTLEY COUNTY

Deep Rock Oil Co.'s No. 1 Lymann & Balfour, Sec. 9. Preparing to abd., 4,038 ft.
J. E. McKanna's No. 1 Francis Farwell ..... C.O., 3,501 ft .to drill deeper; abd., 10-20-27.

HEMPHILL COUNTY

Hoover et al's No. 1 Schaller est., Sec. 4 ..... Spudded and S.D.
Hoover et al's No. 1 fee, J. S. Hood Sur. ..... 300 ft. wtr. in hole; S.D., 5,060 ft; rainbow show.

HUTCHINSON COUNTY

Alamoso Oil Co.'s No. 2 J. M. Sanford, Sec. 83, Blk. 46, H.&T.C. Sur. ..... Rig.
R. G. Barnum et al's No. 1 Garland Sanford, Sec. 78, Blk. 46 ..... Rig.
Beam et al's No. 1 Cockrell, Sec. 3, Blk. 23 ..... S.D., 405 ft. for orders.
Big Coach Oil Co.'s No. 1 Dunnaway, Sec. 5, Blk. Y ..... S.D., 750 ft.
Conklin et al's No. 1 Johnson, Sec. 1, Blk. X03, H.&O. B. Sur. ..... S.D., 600 ft.
Dixon Creek Oil Co.'s No. 1 Burnett est., NW cor. of E 240 A of N 320 A, Sec. 120, Blk. 5, I.&G.N. Sur. Run. 15-in., 450 ft; drlg., 2,290 ft.
Harris et al's No. 1 J. Q. Bost, Sec. 10, Blk. Y-2, T.T. R.R. Sur. ..... 45,000,000 ft. gas; drlg., 2,570 ft.
Holmes & Quinn's No. 1 J. K. Quinn, SW cor. Sec. 9, Blk. 3, B.S.&F. Sur. ..... Drlg., 1,620 ft.
McMan O. & G. Co.'s No. 1 Albert Yake, SW cor. SE, Sec. 2, Blk. J, H.&G.N. Sur. ..... Set 8¼-in. pipe, 2,107 ft. Show gas 2,220 ft; 10,000,000 ft. gas; spraying 10 bbls. daily, 2,990-92 ft; T.D., 3,012 ft; swb. 5 bbls., and 200 to 500 bbls. salt water; to abandon.
Phillips Pet. Co.'s No. 2 Garland, Sec. 77, Blk. 46 ..... Rig on ground.
Phillips Pet. Co.'s No. 12 Elva-Whittenburg, E. Tomlinson Sur. ..... T.A., 4,445 ft.
Phillips Pet. Co.'s No. 2 Chap, Sec. 76, Blk. 46 ..... Rig on ground.
Phillips Pet. Co.'s No. 2 Land, Sec. 83, Blk. 46 ..... Rig on ground.
Phillips Pet. Co.'s No. 1 Perkins-Hamilton, SW cor. of N 240 acres of S half, Sec. 22, Blk. 47, H.&T.C. Sur. Location.
Skelly Oil Co.'s No. 2 Armstrong & Byrd ..... Drlg., 1,325 ft.
Skyrocket Oil Co.'s No. 1 Mrs. R. A. Jameson ..... 800 ft. oil in hole from 3,146 ft; drilled to 3,130 ft; shot with 60 qts., 3,125-60 ft; bridged; no increase in oil after deepening; pumped 25 bbls. in 5 hrs; C.O.
The Texas Co.'s No. 1 Cockrell-B, Sec. 3, Blk. B-3 ..... T.P., 3,015 ft; 500 ft. oil in hole; run liner, 3,040 ft; C.O., 3,110 ft; to pump.
Wendell et al's No. 1 Johnson Bros. ..... S.D., 1,950 ft.

KING COUNTY

Humble O. & R. Co.'s No. 1 Pitchfork, Sec. 171, Blk. A-96, John H. Gibson Sur. ..... Hole full wtr., 3,375 ft; U.R., 8-in. csg., 3,435 ft; C.O., crooked hole, 3,680 ft.
J. L. Pattison's No. 1 Patton ..... Slight show gas, 2,115-30 ft; fish., 3,410 ft.

LAMB COUNTY

Dan Freel et al's No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... Spudded and S.D.
Spade Oil Co.'s No. 1 Andrews, 1,085 ft. from N. line and 200 ft. from E line, Labor 23, League 643, (5 miles NE of Littlefield) ..... Spud and S.D.
Tolbert & Simms' No. 1 Ellwood, NE SW SW, Sec. 14, Blk. B, R. M. Thompson Sur. ..... 712 ft; small show oil and hole full wtr.; dry, 1,504 ft; temp. abd.

LIPSCOMB COUNTY

Cal-Tex's No. 1 Bradford, C NE NE, Sec. 399, Blk. 43, H.&T.C. Sur. ..... Spudded and S.D.
Camp Creek Oil Co.'s No. 1 Mrs. H. D. May, Sec. 612, Blk. 43 ..... S.D., 2,000 ft.
McCorkle's No. 1 A. Barton, NE cor. SW SE, Sec. 504, Blk. 43, H.&T.C. Sur. ..... Wtr. in lime, 4,126-40 ft; 6-in. set 4,155 ft; 5 3/16-in. csg. set, 4,420 ft; S.D., 4,705 ft.
Ozark Drlg. Co.'s No. 1 Frass, NE SE, Sec. 106, Blk. 10, H.&T.C. Sur. ..... Rig on ground.
Smith, Kinsley & Ruby's No. 1 C. W. Jones, NE cor. SW, Sec. 100, Blk. 43 ..... Show oil, 3,520 ft; S.W., 3,900 ft; U.R., 6-in. csg., 4,380 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles ranch ..... Small show oil, 1,133-40 ft. in sand; S.D., 2,730 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Thompson-Amarillo, C Sec. 22, Blk. 26, E.L.&R.R. Sur. ..... U.R. 12-in. csg., 850 ft.
Prairie and Shamrock's No. 2 Gober, Sec. 16, Blk. M-21. T.D., 2,520 ft; cmntd. 10-in. csg., 2,636 ft; fish., 2,636 ft.

MOTLEY COUNTY

Explin. Co.'s No. 1 Burleson ..... Spudded and S.D.
Explin. Co.'s No. 1 Tillson ..... S.D., 750 ft. for repairs.
Explin. Co.'s No. 1 Matador Land & Cattle Co., C SW, Sec. 37, John Gibson Sur. ..... S.D., 1,002 ft.
Wheeler et al's No. 1 C. D. Bird, C NE, Sec. 4, Blk. S, Stephens Sur. ..... Spudded and S.D.

OLDHAM COUNTY

Prairie O. & G. Co.'s No. 1 Landegrin, SE cor. NE SW, Sec. 46, League 310, Capital land ..... 1,900 ft. wtr., 4,085-93 ft; 1 bailer wtr. per hr. and light scum oil. 4,527 ft. (steel line meas.); cmt. 6-in., 4,442 ft; 2,000 ft. SW.W., 4,850-56 ft; T.D., 5,645 ft; fish. for csg.

OCHILTREE COUNTY

W. G. Burton's No. 1 Strickler ..... Drlg., 3,994 ft.
Hamilton et al's H. E. Wamble ..... S.D., 250 ft.
McCorkle P. L. Co.'s No. 1 R. H. Moore ..... S.D., 1,600 ft.
Montgomery's No. 1 Weinett ..... S.D., 850 ft.
Standard Development Co.'s No. 1 Bowen ..... S.D., 900 ft.

POTTER COUNTY

Amarillo Oil Co.'s No. 1 Masterson-K, C SW, Sec. 85, Blk. O-18, D.&P.R.R. Sur. ..... Recmntg. 12½-in. csg., 1,000 ft; show gas, 1,650 ft; drlg., 1,785 ft.
Amarillo Oil Co.'s No. 1 Fuqua, C NW, Sec. 18, Blk. 6, B.S.&F. Sur. ..... Drlg., 500 ft.
Amarillo Oil Co.'s No. 1 Lee Bivins-B, C NW, Sec. 27, Blk. O-18, D.&P.R.R. Sur. ..... Cellar.
El Rio Oil Co.'s No. 1 River Bed, 530 ft. N and 670 ft. W of NE cor. Sec. 106, Blk. 46, H.&T.C. Sur. and in Canadian River Bed ..... Spudding.
Frank Allen et al's No. 1 W. H. Bush ..... S.D., 410 ft; corrected T.D.

RANDALL COUNTY

Westbrook Oil Co.'s No. 1 J. Beckman, SW cor. SE NE, Sec. 46, Blk. B-5 ..... Drlg., 3,590 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Mrs. H. Ledrick & Sons, Sec. 7, Blk. 5-A ..... Show gas, 4,990 ft; show oil, 4,992 ft; csg. set, 4,992 ft; T.D., 5,153 ft; set 3-in., 5,155 ft; drlg. black shale, 5,218 ft.

SHERMAN COUNTY

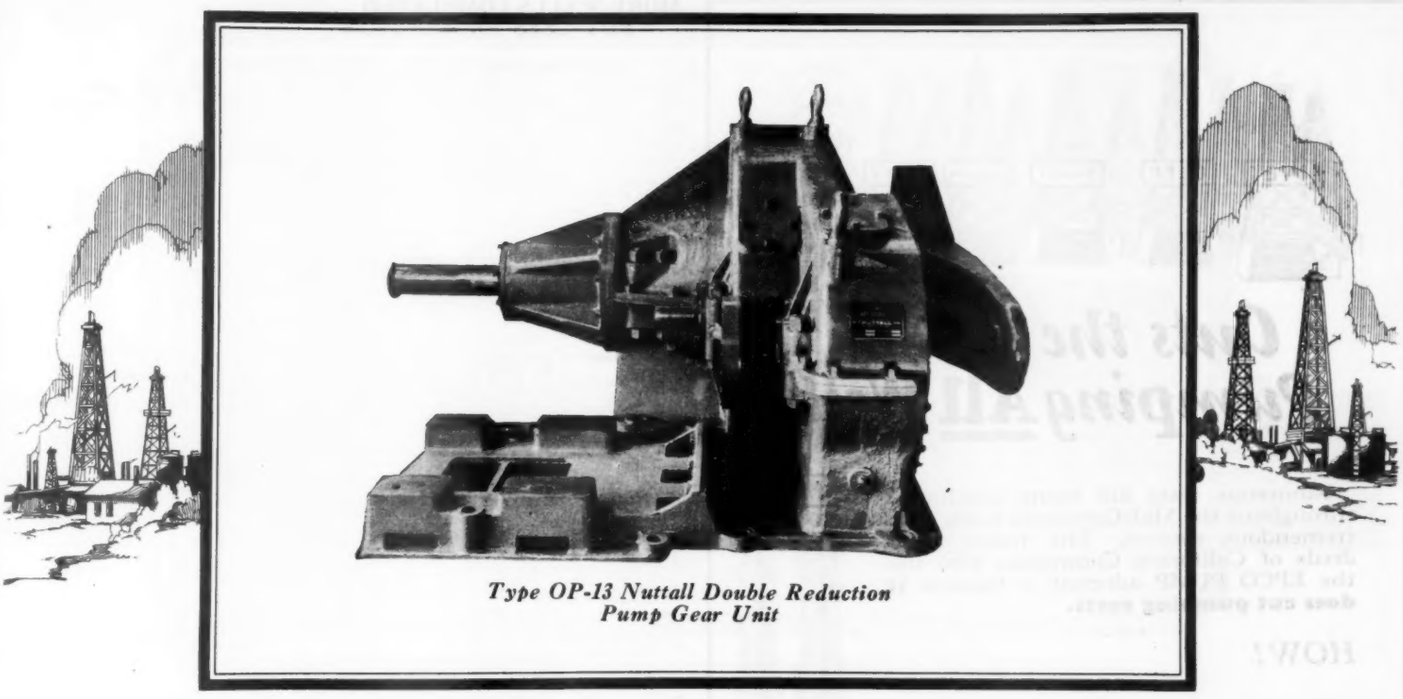
Gibson Oil Co.'s No. 1 Bivins, Sec. 35, Blk. 2-B ..... 100,000 ft. gas, 2,016-26 ft; T.D., 3,353 ft; 2,000 ft. S.W., 3,325-33 ft; S.D., 3,410 ft.

SWISHER COUNTY

Adams & Pritchard's No. 1 Crawford, Sec. 39, Blk. W-1, T.T.R.R. Sur. ..... Drlg., 265 ft.

WHEELER COUNTY

Byrens et al's No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur. ..... U.R. 10-in. csg., 825 ft. and S.D.
Clark et al's No. 1 J. D. Purcell, C NW SW, Sec. 51, Blk. H.&G.N. Sur. ..... Rig.
Rook et al's (was Foster et al's No. 1 S. H. McDonald, SE cor. NW SW, J. N. Lindsay Sur. ..... Drlg. red rock, 2,890 ft.
Rook & Angus' No. 1 Smock (Linkey) C SE SE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... To run 6-in., 1,980 ft; 8-in. froze.
Sabine Oil Co.'s No. 1 E. L. Woodley, C SE SE, Sec. 21, Blk. 24, H.&G.N. ..... Rig.
Smith Brady et al's No. 1 P. J. Sorenson, Sec. 53, Blk. A-4 ..... S.D., 2,120 ft. for orders.
Sun Oil Co.'s No. 1, G. Krc., C NW NW, Sec. 127, Blk. 23 ..... U.R. 8¼-in. csg., 1,850 ft.
The Texas Co.'s No. 2 Morgan, Sec. 92, Blk. 17 ..... 1,000,000 ft. gas, 1,835 ft; show oil, 2,327 ft; drlg., 2,489 ft.
Vaughan et al's No. 1 M. Ackley ..... Location.
H. Vaughan et al's No. 1 C. C. George, C SE NW, Sec. 96, Blk. 17, H.&G.N. Sur. ..... U. R. 6-in., 1,300 ft.
Vaughn et al's No. 1 B. Woodley, C SW NW, Sec. 21, Blk. 24, H.&G.N. Sur. ..... Location.
Vaughn et al's No. 1 A. Wood, C NW SW, Sec. 21, Blk. 24, H.&G.N. Sur. ..... Location.
Vaughn et al's No. 1-B Ackley, C NE NW, Sec. 4, Blk. 27, H.&G.N. Sur. ..... Building rig.
Kaufold et al's No. 1 E. R. Wallace ..... Spudded and S.D.
Woodtex Oil Co.'s No. 2 C. A. Linkey ..... Drlg., 2,160 ft; G. W.
Pete Woodley's No. 1 J. Boyle ..... Fish. U. R. lugs, 1,400 ft.



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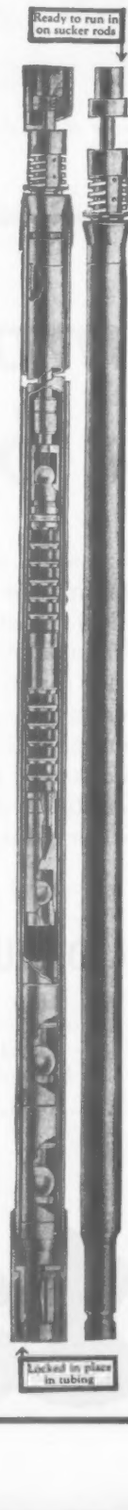


MORE WELLS COMPLETED BUT LESS PRODUCTION

(Continued from Page 89)

Cooke	2	4	5	11
Eastland	2	27	4	33
Jack	1	8	9	18
Montague	5	14	2	19
Palo Pinto		2	11	13
Shackelford	1	9	4	14
Stephens	1	15	4	20
Throckmorton		1		1
Wichita	11	23	2	36
Wilbarger	14	36	6	56
Young	6	32	16	54
Misc. Counties	3	11	24	38
North Central Texas totals, Feb.	70	275	128	473
Grand total North Central and West Texas, Feb.	188	488	225	901
Grand total North Central and West Texas, Jan.	210	459	237	906
Difference	22	29	12	5

ROCKY MOUNTAIN AREA
WYOMING
Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg	Ttl.
Salt Creek	3	211	0	0	5	16	21
Big Horn Co.	4	0	4	0	0	2	2
Carbon Co.	3	0	1	1	0	7	7
Fremont-Converse Co.	1	75	0	0	1	3	4
Fremont Co.	1	0	1	0	1	8	9
Goshen Co.	0	0	0	0	0	1	1
Hot Springs-Washakie	0	0	0	0	0	1	1
Hot Springs Co.	2	100	1	0	0	3	3
Johnson Co.	2	0	2	0	0	3	3
Lincoln Co.	1	0	1	0	0	0	0
Natrona Co.	2	0	2	0	1	2	3
Niobrara Co.	4	0	4	0	2	3	5
Park Co.	0	0	0	0	3	29	32
Platte Co.	0	0	0	0	0	2	2
Sweetwater Co.	0	0	0	0	1	9	10
Sublet Co.	12	242	7	0	1	21	22
Uinta Co.	2	0	2	0	1	3	4
Washakie Co.	2	0	2	0	0	2	2
Weston Co.	0	0	0	0	0	11	11
Total Feb.	39	628	27	1	16	126	142
Total Jan.	9	423	1	1	20	149	169
Difference	30	205	26	0	4	23	27

COLORADO
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Boulder	1	0	1	0	0	5	5
Fremont	5	555	0	0	1	15	16
Larimer	0	0	0	0	3	13	16
Moffat	1	2,000	0	0	10	9	19
Routt	0	0	0	0	0	5	5
Rio Blanco	0	0	0	0	1	3	4
Misc.	1	0	1	0	0	37	37
Total Feb.	8	2,555	2	0	15	87	102
Total Jan.	10	663	2	1	10	83	93
Difference	2	1,892	0	1	5	4	9

NEW MEXICO
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Total Feb.	4	20	2	0	11	91	102
Total Jan.	7	280	3	2	10	90	100
Difference	3	260	1	2	1	1	2

UTAH
Summary of Drilling Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Total Feb.	0	0	0	0	2	28	30
Total Jan.	0	0	0	0	1	27	28
Difference	0	0	0	0	1	1	2

MONTANA
Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Cat Creek	0	0	0	0	0	4	4
Kevin-Sunburst	7	113	5	0	12	18	30
Misc.	2	0	2	0	10	58	68
Total Feb.	9	113	7	0	22	80	102
Total Jan.	11	1,880	4	2	21	73	94
Difference	2	1,767	3	2	1	7	8

EASTERN FIELDS
Summary of Completed Wells

Fields—	Comp.	Prod.	Dry	Gas
Allegany	35	45	0	0
Bradford	77	138	0	0
Middle Field	3	6	0	0
Venango-Clarion	10	11	1	6
Butler-Armstrong	7	3	0	5
S. W. Penna.	12	9	7	3
West Virginia	57	142	10	34
S. E. Ohio	60	1,776	7	18
Total Feb.	261	2,130	25	66
Total Jan.	252	1,077	34	67
Difference	9	1,053	9	1

Summary of Work Under Way

Fields—	Rigs	Drg.	Ttl.
Allegany	8	20	28
Bradford	25	55	80
Middle Field	0	2	2
Venango-Clarion	1	8	9
Butler-Armstrong	6	8	14
S. W. Pennsylvania	1	28	29
West Virginia	30	91	121
S. E. Ohio	30	60	90
Total Feb.	101	272	373
Total Jan.	89	299	388
Difference	12	27	15

LIMA FIELD
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg	Ttl
Wood	2	0	2	0	2	3	5
Hancock	1	35	0	0	0	2	2
Allen	1	0	1	0	1	1	2
Auglaize	2	15	0	0	1	4	5
Sandusky	3	11	0	0	0	0	0
Mercer	1	0	0	1	0	3	3
Van Wert	0	0	0	0	0	1	1
Seneca	0	0	0	0	0	3	3
Lucas	0	0	0	0	0	1	1
Ottawa	0	0	0	0	0	1	1
Shelby	0	0	0	0	0	1	1
Darke	0	0	0	0	0	2	2
Hardin	5	0	0	5	0	2	2
Wyandot	3	2	0	1	0	0	0
Total Feb.	17	63	3	7	4	24	28
Total Jan.	11	174	1	2	6	20	26
Difference	6	111	2	5	2	4	2

CENTRAL OHIO
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg	Ttl
Knox	0	0	0	0	0	2	2
Ashland	5	0	0	5	2	15	17
Medina	3	8	1	1	0	3	4
Lorain	1	0	0	1	0	3	3
Wayne	1	0	1	0	4	4	8
Holmes	3	110	0	2	1	5	6
Coshocton	0	0	0	0	0	5	5
Cuyahoga	9	10	2	5	0	9	9
Guernsey	0	0	0	0	0	6	6
Gallia	1	0	1	0	2	1	3
Starke	0	0	0	0	0	1	1
Fairfield	0	0	0	0	0	1	1
Richland	0	0	0	0	0	1	1
Carroll	0	0	0	0	0	1	1
Summit	0	0	0	0	0	1	1
Total Feb.	23	128	5	14	11	58	69
Total Jan.	28	353	7	15	12	57	69
Difference	5	225	2	1	1	1	0

ILLINOIS
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg	Ttl
Clarke	1	2	0	0	0	5	5
Cumberland	0	0	0	0	0	2	2
Crawford	2	4	1	0	2	2	4
Lawrence	3	43	0	0	1	2	3
Wabash	6	75	3	1	0	3	3
McDonough	1	0	1	0	0	0	0
Tazwell	1	0	1	0	0	0	0
Marshall	0	0	0	0	0	1	1
Macon	0	0	0	0	0	1	1
Madison	0	0	0	0	0	2	2
St. Clair	0	0	0	0	0	1	1
Shelby	0	0	0	0	0	1	1
Total Feb.	14	124	6	1	3	20	23
Total Jan.	6	59	2	0	1	24	25
Difference	8	65	4	1	2	4	2

INDIANA
Summary of Field Operations

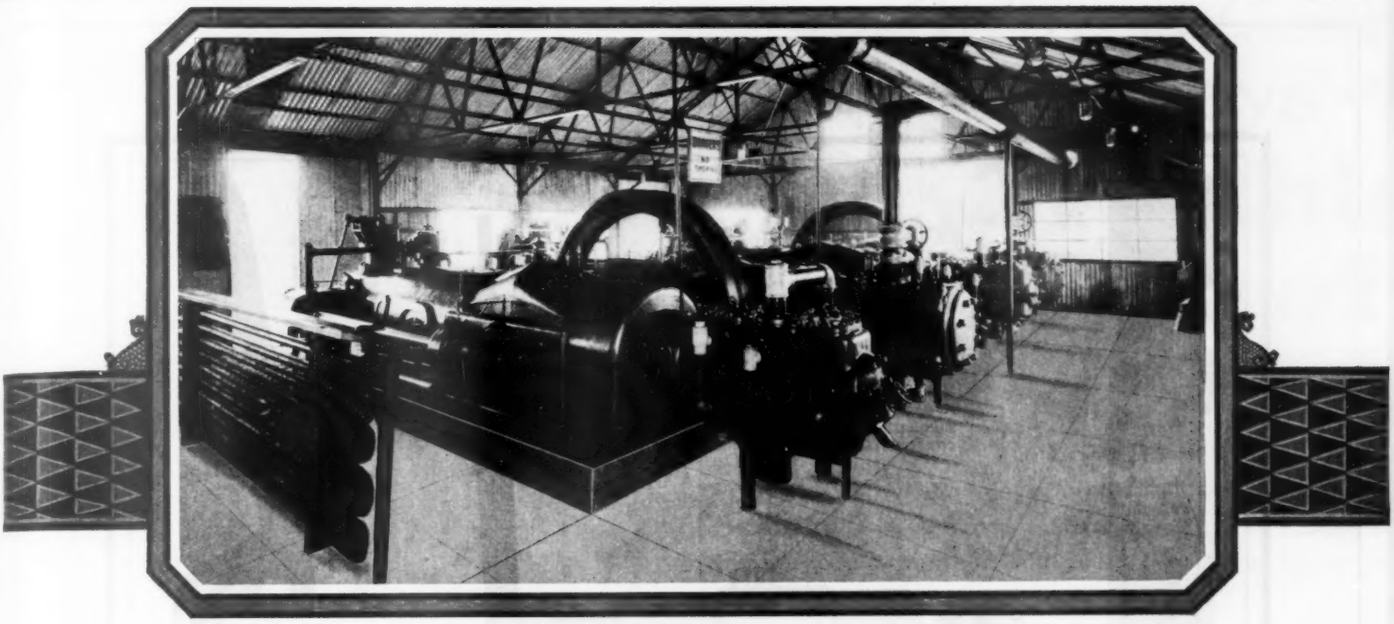
	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wells	0	0	0	0	0	1	1
Blackford	0	0	0	0	0	2	2
Jay	1	5	0	0	0	2	2
Grant	0	0	0	0	0	2	2
Huntington	0	0	0	0	0	1	1
Randolph	0	0	0	0	0	2	2
Gibson	2	25	1	0	0	6	6
Pike	2	0	2	0	0	3	3
Daviess	0	0	0	0	0	4	4
Sullivan	3	50	1	1	0	4	4
Vigo	2	105	0	0	0	3	3
Allen	2	0	2	2	0	2	2
Knox	0	0	0	0	0	1	1
Dubois	0	0	0	0	0	1	1
Johnson	0	0	0	0	3	0	3
Benton	0	0	0	0	0	1	1
Marion	0	0	0	0	0	1	1
Fountain	0	0	0	0	0	1	1
Martin	1	0	1	0	0	1	1
Monroe	0	0	0	0	0	1	1
Bartholomew	0	0	0	0	0	1	1
Miami	0	0	0	0	0	1	1
White	0	0	0	0	0	1	1
Montgomery	0	0	0	0	0	1	1
LaGrange	0	0	0	0	0	1	1
Wabash	0	0	0	0	0	1	1
Greene	0	0	0	0	0	1	1
Henry	0	0	0	0	0	1	1
Harrison	3	0	1	2	0	2	2
Madison	0	0	0	0	0	1	1
Rush	1	0	0	1	0	0	0
Shelby	1	0	0	1	0	0	0
Total Feb.	18	185	6	7	5	48	53
Total Jan.	17	463	3	0	5	51	56
Difference	1	278	3	7	0	3	3

MICHIGAN
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Muskegon	1	170	0	0	8	7	15
Saginaw	0	0	0	0	0	2	2
Gratiot	0	0	0	0	0	1	1
Shiawassee	0	0	0	0	0	1	1
Crawford	0	0	0	0	0	1	1
Charlevoix	0	0	0	0	0	1	1
Midland	0	0	0	0	0	1	1
Roscommons	0	0	0	0	0	1	1
Sanilac	0	0	0	0	0	1	1
Isabelle	0	0	0	0	0	1	1
Alpena	0	0	0	0	0	1	1
Total Feb.	1	170	0	0	8	18	26
Total Jan.	1	20	0	0	3	10	13
Difference	0	150	0	0	5	8	13

KENTUCKY-TENNESSEE
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Warren	3	12	1	0	0	7	7
Allen	1	64	0	0	0	11	11
Barren	10	807	0	0	0	24	24
Ohio	31	2,175	7	1	1	54	55
Daviess	11	422	5	0	6	34	40
McLean	1	0	1	0	0	9	9
Hancock	2	25	1	0	1	2	3
Cumberland-Monroe	0	0	0	0	0	2	2
Clinton	0	0	0	0	0	1	1
Butler	0	0	0	0	0	2	2
Hopkins	0	0	0	0	0	1	1
Henderson	0	0	0	0	0	3	3
Muhlenburg	0	0	0	0	0	1	1
Breckenridge	0	0	0	0	0	1	1
Wayne	2	7	0	0	0	3	3
Estill	5	5	2	0	0	3	3
Lee-Owsley	1	50	0	0	0	1	1
Wolfe	0	0	0	0	0	6	6
Johnson-Magoffin	4	41	0	0	0	1	1
Floyd	1	0	0	1	0	2	3
Knox	0	0	0	0	0	4	4
Clay	0	0	0	0	0	1	1
Elliott	1	2	0	0	0	1	1
Total Ky.	73	3,610	17	2	8	173	181
Total Tenn.	22	1,165	11	3	0	22	22
Total Miss.	1	0	1	0	9	21	30
Total Ala.	0	0	0	0	0	7	7
Total Fla.	0	0	0	0	0	13	13
Total Feb.	96	4,775	29	5	17	236	253
Total Jan.	58	1,638	17	1	23	219	242
Difference	38	3,137	12	4	6	17	11



CLARK "4" COMPRESSOR

for 100% Continuous 24-Hour Operation

The CLARK 4-cycle Direct Driven Compressor is designed and manufactured to furnish the industry with compressor equipment of the highest possible dependability and economy when continuous operation is desired.

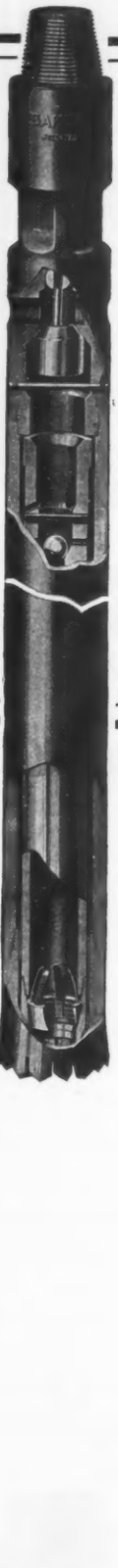
Among the features which contribute to the remarkable endurance and economy of the CLARK "4" are:

- Heavy construction throughout—unusually rugged frame, bearings and valve gear—great overload capacity
- 12" Crank Shaft through bearings—no spring when engine is well loaded—no danger of overheating
- Automatic or mechanical forced lubrication to all important points
- Oil-tight Dividing Wall between crank case and power cylinder—no smoke nuisance—no burnt carbon in bearing oil
- Cylinder Jacket separate from bed—repair or replacement simple and inexpensive
- 7" Inlet and Exhaust Valves—Ball Point Push Rods—no offset levers in Valve Gear

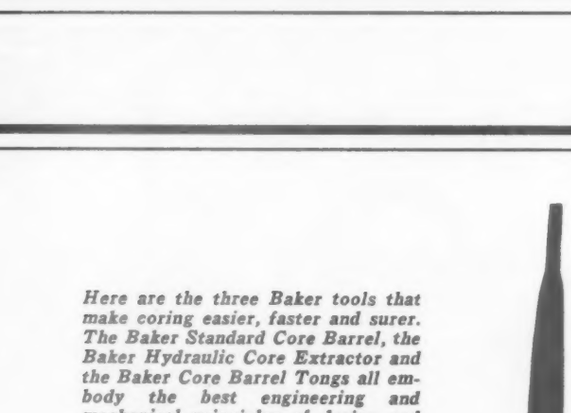
Offered in Single and Twin-cylinder types, 100 and 200 brake horsepower, respectively. Our engineers will gladly furnish complete data on the CLARK "4." Clark Bros. Company, Olean, N. Y. Mid-Continent branch and warehouse at 125 W. First St., Tulsa, Okla. Other warehouses at McCamey and Sweetwater, Texas, and Artesia, N. M. Also Smith, Booth, Usher Company, 228 S. Central Ave., Los Angeles, and 50 Fremont St., San Francisco.

Clark Bros. Co. OLEAN, N.Y.

CLARK



Here are the three Baker tools that make coring easier, faster and surer. The Baker Standard Core Barrel, the Baker Hydraulic Core Extractor and the Baker Core Barrel Tongs all embody the best engineering and mechanical principles of design and construction.



CORE EXTRACTOR

TONGS

Better, quicker coring with BAKER Core Tools

When you want a core you want it—and it must be as nearly perfect as possible. You don't want to fool around for hours, only to get a mushy, mixed-up core that tells nothing.

That's why you should be using Baker specialized coring tools: the Standard Core Barrel, which gets and brings up the right kind of core the first time; the Baker Core Barrel Tongs, which simplify handling—and the Baker Hydraulic Core Extractor to insure removal of the core in perfect condition from the barrel.

There's a set of triplets that mean real money to you. Coring, handling, extracting—you can do it all better with these Baker Coring Tools—every time!

Your copy of the Baker catalog is ready for you—as well as special literature describing these tools.

COALINGA, CALIFORNIA

BAKER CASING SHOE COMPANY

TAFT, CALIFORNIA,

Box L, Huntington Park, Calif.

Export Sales Office:
25 Broadway, New York City

Mid-Continent Representatives:
B & A SPECIALTY COMPANY

220 E. Brady St., Tulsa, Okla.

708 Keystone Bldg., Houston, Texas

4584

OKLAHOMA GROSS PRODUCTION—FOURTH QUARTER

(Continued from Page 74)

Name and address—	Barrels	M. ft. gas	Amount
Dings, P. C., Chicago, Ill.*	2,299.75	.....	3,167.17
Darks, H. H., Oklahoma City*	.....	.....	2,105.75
Dillard, V. E., Ardmore*	4,835.10	.....	5,945.59
Deaner, J. J., Okmulgee*	.....	.....	9,449.00
Day, Henry Mason, New York City*	.....	.....	2,267.12
Dolman, L. S., Ardmore*	.....	.....	2,305.77
Davis, Emry, New York City*	.....	.....	4,331.44
Depew, Henry, New York City*	.....	.....	2,417.16
Daisy Belle Petroleum Co., Ardmore	.....	.....	3,569.64
Douglas Oil Co., Tulsa	.....	.....	4,101.66
Douglas, O. H., Okmulgee*	92,081.94	.....	4,233.61
Douglas, H. T., Shawnee*	.....	.....	7,707.28
Delmar Oil Co., Bartlesville	25,240.70	88,842	36,881.59
Dillard, J. H., St. Louis, Mo.*	.....	.....	5,319.03
Darbey Petroleum Corp. of New York, Tulsa	228,607.55	150,594	310,712.82
Dover Inv. Co., Bartlesville	1,988.45	.....	2,562.30
Derdeyn, Hector, and Sylvia Derdeyn, Pauls Valley*	.....	.....	2,173.60
Devonian Oil Co., Tulsa	86,103.49	.....	121,408.34
Davis, B. F., Wewoka*	.....	.....	10,963.30
Doyle, J. A., Wewoka*	.....	.....	9,069.70
Davis, Clement, Shawnee*	.....	.....	5,462.04
Davis, Beatrice H., Tulsa	5,995.93	.....	7,895.56
Denver Prod. & Refg. Co., Okmulgee	123,891.25	.....	164,704.29
Dixon, Joe, Norman*	.....	.....	2,690.43
Davis, L. R., Tulsa	6,777.57	.....	8,914.43
Deep Rock Oil & Ref. Co., Tulsa	91,852.94	.....	141,835.58
Dixie Drilling Co., Sapulpa	20,841.89	.....	12,003.60
Dixie Oil Co., Inc., Shreveport, La.	218,131.96	.....	304,006.83
Delk Investment Corp., St. Louis, Mo.*	.....	.....	5,826.31
E			
Ellen Oil & Gas Co., Tulsa	.....	.....	5,298.36
Equitable Royalties Corp., Shawnee*	.....	.....	8,819.95
Elswick, P. C., Lamont	.....	.....	8,554.62
Ellis Drilling Co., Wichita Falls, Tex.	5,890.72	.....	8,119.92
Elliott & Vensel, Tulsa	.....	.....	8,263.00
Elm Oil Co., Tulsa*	3,005.18	.....	3,846.48
Eastern Royalties Corp., New York City*	.....	.....	18,977.72
Eason, T. T., Enid*	7,839.88	.....	11,770.12
Eagle Picher Lead Co., Henryetta	1,975.95	71,925	7,303.39
Endicott, C. C., estate, Tonkawa*	.....	.....	3,424.02
Emery, Lewis, Jr., & Sons, Bradford, Pa.	6,872.60	.....	8,226.39
Edwards, G. W., Seminole*	.....	.....	13,914.16
Empire Oil & Refining Co., Bartlesville*	66,375.12	.....	89,801.30
Empire Oil & Refining Co., Bartlesville	.....	.....	349,043.00
Empire Oil & Refining Co., Bartlesville (suspense)*	3,823.42	.....	4,892.53
Empire Oil & Refining Co., Bartlesville (suspense).	3,522.91	.....	4,640.24
Empire Oil & Refining Co., Bartlesville	1,775.49	.....	2,154.90
Enid Bank & Trust Co., trustee, Enid*	.....	.....	12,122.95
Edgwood Oil Co., Tulsa	12,696.47	1,811	16,837.28
Enfisco Oil Corp., Tulsa	15,382.13	.....	19,160.28
F			
Flint, Charles W., Tulsa*	.....	.....	4,169.42
Fare, J. C., Wewoka*	.....	.....	2,130.63
Fitzgerald, Lena, Blackwell*	.....	.....	30,623.97
Fennell, J. T., Pauls Valley*	.....	.....	2,992.51
Foster Oil Co., Tulsa	.....	.....	13,202.08
Foster, James F., Anthony, Kans.*	.....	.....	4,813.45
Foster & Davis, Inc., Bartlesville	9,332.14	250	12,068.83
Foster Petroleum Corp., Bartlesville*	9,277.72	.....	12,366.95
Fregate, S. M., guardian, Maramec	.....	.....	2,355.54
Fletcher, A. C., Deer Creek*	.....	.....	2,353.14
Feagin-Gant & Garvin, Duncan*	.....	.....	6,977.11
Feagin, N. B., Ardmore*	.....	.....	3,578.69
Flora Okla. Oil Co., Cement	4,731.56	.....	7,979.86
Franks, W. H., Seminole*	.....	.....	17,284.71
Franks, Rosie J., Seminole*	.....	.....	69,210.19
Franchot, D. W., & Co., Tulsa	39,673.09	.....	50,767.93
Fleet, D. F., Ada*	.....	.....	9,770.79
Fleet, Alice, guardian, Ada*	.....	.....	8,200.62
Fare, J. C., Wewoka	.....	.....	10,835.33
Flanagan, J. P., Tulsa*	.....	.....	3,827.93
Falkenburg, A. W., Wewoka*	.....	.....	6,424.65
Flynn, D., Oklahoma City	.....	.....	3,235.96
Fern Oil & Gas Co., Yale	8,954.79	.....	11,589.20
Finance Oil Co., Gowanda, N. Y.	16,226.27	.....	20,607.05
Faskin, Mary, Shawnee*	.....	.....	3,772.06
Ryan, Thomas, Flanagan, Ill.*	.....	.....	7,346.52
Farwell, K. C., Chickasha*	.....	.....	5,647.48
Farwell, Kathenore Louise, Chickasha*	.....	.....	2,094.97
Fitzgerald, D. C., trustee, Ardmore	6,523.71	.....	8,181.44
Frederick, Fred J., Santa Monica, Calif.*	.....	.....	3,514.10
Frederick, A. L., Santa Monica, Calif.*	.....	.....	2,543.63
Frederick, Fred J., Santa Monica, Calif.	.....	.....	3,514.10
Frederick, Mildred A., Santa Monica, Calif.*	.....	.....	2,633.04
Fugate, Eliza, Oolagah*	.....	.....	4,384.39
Fox Royalty Co., Tulsa	20,321.47	.....	24,351.77
Farren, Mona R., Tulsa	1,000.33	.....	1,586.13
Frazier, G. W., Kingfisher*	.....	.....	30,424.25
Folk, Harry B., Sand Springs*	4,040.27	.....	5,538.05
Fixico Oil Co., Tulsa*	.....	.....	15,035.95
Fort Ring Oil & Gas Co., Fort Worth, Tex.	.....	.....	5,888.59
Frierson, A. M., Bristow*	.....	.....	2,103.51
Fagar Oil & Gas Co., Garber	5,693.28	.....	7,758.72
Fuhrman Petroleum Co., Okmulgee	.....	.....	25,517.66
Fuhrman Petroleum Co., Okmulgee*	.....	.....	3,027.66
Foster Petroleum Corp., Bartlesville	395,905.55	.....	548,676.34
Franklin, Wirt, Ardmore*	12,784.06	.....	15,731.52
Franklin, Wirt, Petroleum Corp., Ardmore	160,594.55	.....	267,612.53
G			
Grimshaw, C. J., Shawnee*	23,224.47	.....	3,052.03
Garner Royalties, Inc., Long Beach, Calif.*	.....	.....	6,872.34
Gates Oil Co., Ardmore	10,192.49	.....	12,138.66
Glass, J. Wood, Nowata*	4,042.63	.....	5,114.36
Goldelline Oil Corp., Oklahoma City	18,045.19	.....	23,646.03
Guaranty Trust Co., New York City*	.....	.....	4,955.31
Graham, W. A., estate of, Clarion, Pa.*	.....	.....	3,158.36
Grimes, H. L., Oklahoma City*	.....	.....	4,386.13
Gypsy Oil Co., Tulsa*	.....	.....	10,387.63
Gilbert, N. T., agent, Tulsa	4,025.01	.....	5,402.48
Graham, Crisella, Tulsa*	11,875.00	.....	9,337.68
Garner, J. D. and Mabel, Wewoka*	.....	.....	2,442.44
Greer, F. H., Tulsa*	.....	.....	2,501.35
Greer, F. H., Tulsa*	.....	.....	2,588.97
Goltry, V. L., Enid	.....	.....	4,457.54
Grisso, W. E., Seminole*	.....	.....	88,168.96
Graham, James R., Tulsa	7,599.49	.....	10,013.11
Galvez Oil Corp., Tulsa	6,993.81	3,028	12,521.04
Ginsberg, N. S., Muskogee	.....	.....	5,505.02
Ginsberg, N. S., Muskogee	.....	.....	9,970.06
Gordon, C. M., Muskogee*	.....	.....	2,023.56
Gardner Petroleum Co., Tulsa	24,962.74	.....	34,700.58
Gilcrease Oil Co., Tulsa	24,030.80	.....	31,363.59
Glass & Harmon, Nowata	10,676.10	.....	13,846.77
Gray Oil Co., Tulsa	5,072.74	.....	6,487.16
Gilliland Oil Co., Tulsa	23,352.78	.....	32,070.23
Gahagan, Annie, Wewoka*	.....	.....	30,961.14
Glass, M. L., Tulsa*	.....	.....	2,137.12
Gunn, Frank R., Tulsa	.....	.....	2,443.20
Gillet, George M., Jr., trustee, Baltimore, Md.	1,636.29	1,849	2,402.74
Gilmer Oil Co., Ardmore*	.....	.....	92,460.60
Goodson, Ola, Blackwell	.....	.....	6,718.61
Gypsy Oil & Gas Co., Tulsa	339,511.71	.....	443,060.40
Gypsy Oil & Gas Co., Tulsa	3,509,518.96	.....	4,637,259.98
Gypsy Oil & Gas Co., Tulsa	.....	2,294,258	140,370.72
Gypsy Oil & Gas Co., Tulsa	.....	.....	27,398.11
Gypsy Oil & Gas Co., Tulsa*	2,003.10	.....	2,476.43
Gillespie, F. A., & Sons Co., Tulsa	.....	.....	27,415.05
Grimes & Gillespie, Tulsa	15,607.08	.....	21,487.06
Gill, Nel Kenan, Okmulgee*	.....	.....	3,804.50
Gill, Nel Kenan, Okmulgee*	.....	.....	7,711.88
Gault, Edward, estate, Coon Rapids, Iowa*	.....	.....	2,516.69
Galt, Edward, Ardmore*	1,806.21	.....	2,237.57

"Sully," the Chemist, Says—

Try this Trio of Time-Savers

"Lost motion" is the thief of oil-field profits. Here's three Sulco Products designed to work together to reduce lost motion to the minimum and bring production up to maximum efficiency:

KONSET to quicken the set of cement, saving 12 days per well or better. Waterproofs and hardens, accomplishing a complete water shut-off and quicker, better, longer-lasting cement work anywhere around the lease. Fine for floors, oilproofs and comes colorless or in choice of colors.

KLEEN-A-WELL for cleaning tubing and rods. Removes paraffin or asphaltum from oil wells, gypsum or salt from gas wells.

SLUSH-MIX, the improved mud heavier or drilling mud. Increases weight. Lubricates the bit. Prevents caving or heaving.

Try this trio of time-savers known as "the Sulco BIG 3" and make each well a better producer.

For Sale by any Supply Store or Lumber Yard

The SULLIVAN *Company*

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Offices at
Tulsa
Houston
Los Angeles

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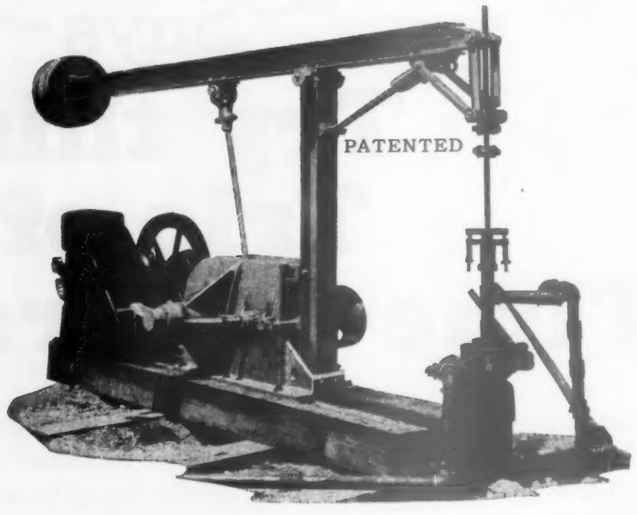
Casper, Wyo.

Export: Oilfield Equipment Co., New York

Life Preservers for the Oil Fields



A Mechanically Correct Oil Well Pumping Power

Fabricated with "H" Beam for Sampson Post and Walking Beam.

Toggle made from steel casting.

Interchangeable bronze bearings throughout.

Cut gears running in oil.

Patented cam motion keeps polish rod in alignment at all times.

Can be used to pump from one to three wells.

Local Distributors Wanted

Stork Engineering Company

Saginaw, Michigan, U. S. A.

Name and address—	Barrels	M. ft. gas	Amount
Galt, Edward, Ardmore	8,490.17	.....	10,033.22
Gled Oil Co., Tulsa	14,822.17	.....	20,186.36
Galer Oil Co., Tulsa	.....	.....	22,584.67
Gorton Trust, Cement	10,620.20	.....	13,307.53
Grissa, W. E., Seminole*	.....	.....	9,485.27
Gibson, E. L., Seminole*	.....	.....	2,130.31
Grieves, George B., Terlton	.....	.....	15,579.67
Georgia Oil & Gas Co., Copan	2,402.19	2,675	3,734.56
Gilcrease, Thomas, Tulsa	3,595.56	.....	4,598.09
Gilcrease, Thomas, Tulsa*	1,174.05	.....	1,501.40
Garland, R. F., Tulsa	.....	.....	21,253.67
Garland & Co., R. F., Tulsa	34,776.36	.....	23,262.78
H			
Harber, J. N., Seminole*	.....	.....	23,652.16
Harber, Mary, Seminole*	.....	.....	17,508.55
Harber, R. T., Seminole*	.....	.....	5,690.76
Harber, W. E., Seminole*	.....	.....	22,101.67
Home Stake Oil & Gas Co., Seminole*	.....	.....	163,121.44
Humble Oil & Refining Co., Houston, Tex.	337,653.18	.....	404,680.19
Humble Oil & Refining Co., Houston, Tex.	.....	Gas	18,861.27
Houston Oil Co. of Texas, Houston, Tex.	75,118.95	.....	101,489.65
Houston Oil Co. of Texas, Houston, Tex.	.....	57	2,319.73
Hartley, J. C., agent, Garber*	.....	.....	8,992.54
Horton, A. D., Hawarden, Iowa*	5,291.07	.....	6,336.81
Harris and Haun, Inc., Blackwell	.....	.....	41,981.83
Highway Oil Refining Corp., Tulsa	7,396.70	.....	9,626.16
Hughes, William L., Sapulpa*	.....	.....	3,390.01
Harris, E. L., Wewoka*	2,118.78	.....	2,839.05
Harris, E. L., trustee, Wewoka*	15,534.59	.....	20,907.01
Hopkins, A. N., Davenport*	1,922.26	8,946	3,354.53
Hearn, G. W. and Lucy, Earlsboro*	.....	.....	15,687.21
Hammons, S. B., Seminole*	.....	.....	4,178.50
Hall, J. E., Sasakwa*	.....	.....	5,955.66
Hall, Ruth M., Holdenville*	.....	.....	4,272.66
Higgins, W. P. and Mary R., Oklahoma City	.....	.....	2,016.65
Hombro Oil Co., St. Louis, Mo.	4,562.80	.....	5,656.24
Helmer, Dr. J. N., New York City, N. Y.	.....	.....	2,081.80
Hightower, W. E., Oklahoma City*	3,278.25	.....	4,677.00
Hampton, W. H., Okmulgee*	5,264.47	.....	6,995.83
Hill, P. J., Shawnee*	.....	.....	52,731.91
Horsley, Thomas J., Wewoka*	.....	.....	6,909.50
Harris, Cecil H., Shawnee*	.....	.....	3,085.50
Homesley, U. C., Earlsboro*	.....	.....	17,362.94
Hefner Co., Oklahoma City*	.....	.....	4,712.48
Hartley, Dora Linn, estate of, Enid	.....	.....	2,248.13
Hanbury, Harry, Duncan	.....	.....	8,821.55
Henderson Oil Co., Marietta, Ohio	5,279.04	.....	6,469.47
Horton, E. N., Ardmore*	.....	.....	2,547.79
Hull, J. A., Co., Tulsa	94,892.79	122,670	131,137.79
Hull, J. L., Seminole*	.....	.....	4,246.48
Herbert Oil Co., Fort Worth, Tex.	4,790.55	.....	6,345.94
Hendricks, H. G., attorney, Bristow	.....	.....	6,837.77
Howell, Mollie E., Wellington, Kans.*	.....	.....	5,140.17
Hicks, G. W., Cox City*	.....	.....	4,441.90
Henry, Marie S., New York, N. Y.	.....	.....	3,355.10
Hyden, Arch H., Tulsa*	1,503.12	.....	2,105.62
Hewitt, Erskine, New York, N. Y.*	.....	.....	2,591.57
Hernstadt, S. J., trustee, Ardmore*	2,194.35	.....	2,607.11
Hernstadt, N., New York, N. Y.	4,148.36	.....	5,067.54
Healdton Oil & Gas Co., Enid	22,874.12	8,252	34,087.94
Healdton Oil & Gas Co., Enid*	3,642.47	.....	4,885.75
Hall, Benz T., Los Cruces*	.....	.....	2,459.75
Hawk, S. E. and M. W., Miami*	.....	.....	2,314.20
Hayes, Elizabeth C., Oklahoma City	6,157.07	.....	8,344.52
Harland Oil Co., Walco	16,949.71	58,537	22,673.55
Harold Petroleum Co., Blackwell	13,265.82	.....	21,465.98
Home Gas Co. of Cushing, Cushing	6,394.87	.....	26,797.46
Hamon, Jake L., estate, Ardmore	11,340.70	.....	7,422.52
Hamon, Jake L., estate, Ardmore	12,162.08	.....	7,551.96
Hamon & Colcord, Ardmore	9,859.97	.....	11,346.03
Hamon & Colcord, Ardmore	9,949.73	.....	10,365.66
Harber, A., St. Louis, Mo.*	.....	.....	4,552.20
Hesslein, Max, New York City*	.....	.....	5,928.85
Homaokla Oil Co., Oklahoma City*	15,893.01	.....	20,235.15
Homaokla Oil Co., Oklahoma City	84,620.42	.....	107,687.12
Home Oil Co., Tulsa	2,900.44	.....	2,823.21
Howard, O. R., Tulsa	10,182.73	.....	12,018.78
Hanford, E. C., Sand Springs*	1,515.09	.....	2,076.77
Hemlock Oil Co., Tulsa*	1,491.42	693	2,280.45
Hemlock Oil Co., Tulsa	1,381.58	107,064	10,317.62
Hall & Briscoe, Inc., Chickasha	23,721.81	.....	29,409.62
Hosack, J. E., Blackwell	.....	.....	11,531.03
Hearn, Gus W. and Dock H., Earlsboro*	.....	.....	20,627.03
Hughes, Richard, Tulsa	.....	.....	2,356.00
Harber, W. E., Seminole*	.....	.....	28,858.69
Henry, J. W., Tulsa	10,141.61	.....	14,441.27
Hughes, T. J., Cushing	.....	.....	10,315.98
Hewitt, W. M., Okmulgee	.....	.....	8,042.28
Hayes, J. S., Newkirk*	.....	.....	2,123.14
I			
Irelan, O. M., Sapulpa	10,622.88	15,040,997	15,476.63
Iowa Oil & Refining Co., Hawarden, Iowa*	.....	.....	8,754.09
Imperial Royalties Co., Kansas City, Mo.*	34,671.23	.....	48,864.79
Interocean Oil Co., Tulsa	43,808.36	.....	56,004.58
Ingram, J. A., Shawnee*	.....	.....	68,974.87
Ingram, Lucile, Shawnee*	.....	.....	3,520.39
Ingram, Gladys, Shawnee*	.....	.....	3,520.39
Ingram, Mildred, Shawnee*	.....	.....	3,222.97
Ingram, Leonard D., Muskogee*	.....	.....	4,152.24
Illinois-Okla. Petroleum Corp., Duncan	.....	.....	5,862.29
Indian Royalty Co., Okmulgee*	.....	.....	46,351.45
Inscone, J. D., Duncan*	.....	.....	2,776.53
Imo Oil & Gas Co., Covington	.....	.....	14,748.60
Independent Oil & Gas Co., Tulsa	.....	.....	1,631,860.89
Independent Oil & Gas Co., Tulsa*	.....	.....	4,524.64
Independent Oil & Gas Co., Tulsa	4,356.74	.....	5,942.81
Iron Mountain Oil Co., Tulsa	.....	.....	1,525.64
Iron Mountain Oil Co., Tulsa	16,974.29	17,704,175	22,212.66
Investors Royalty Co., Inc., Tulsa*	20,056.70	.....	26,922.14
Indian Territory Illuminating Oil Co., Bartlesville*	68,880.69	.....	92,118.42
Indian Territory Illuminating Oil Co., Bartlesville	2,843,656.94	1,903,703	4,095,644.41
Indiana Oil & Gas Co., Tulsa	26,434.38	22,853	37,218.27
J			
Jacobs, Leo, St. Louis, Mo.	6,173.71	2,048	7,980.43
Jacobs, Leo, St. Louis, Mo.	6,617.18	.....	8,307.34
Jameson, John B., Concord, N. H.*	.....	.....	2,238.29
Jennings, William P., Shawnee*	.....	.....	3,408.07
Jones, J. Edward, New York, N. Y.*	.....	.....	11,264.01
Jones, R. C., Inc., Cushing	15,135.79	16	22,298.13
Jones, Robert, Wewoka*	.....	.....	4,742.64
Johnson, B. F. and Mary Eva, Seminole*	.....	.....	7,127.70
Johnson, Edith M.	.....	.....	3,686.70
Johnson, C. O., Durant	.....	.....	5,539.17
Johnson, C. O., and George C. Pendleton, Durant	.....	.....	32,466.11
Johnson Oil Refining Co., Chicago, Ill.	5,885.86	.....	7,653.01
Johnston, Willard, Shawnee*	.....	.....	9,814.58
Johnston, C. W., Seminole*	.....	.....	2,452.96
Johnson, Robert K., Oklahoma City*	.....	.....	2,315.03
Junction Oil & Gas Co., Newkirk	4,251.57	.....	5,584.69
Jackson, L. B., Sapulpa	4,875.62	.....	7,489.98
Jackson, L. B., Sapulpa*	7,955.52	.....	10,622.71
Johnson, C. O., and George C. Pendleton, Durant	.....	.....	32,466.11
Jackson & Wise, Sapulpa	5,699.75	1,502,750	6,466.65
Jennings, E. H., Bros., Pittsburgh, Pa.	4,925.45	1,432	6,612.40
Jennings, R. G., Pittsburgh, Pa.	18,412.93	.....	27,009.99
Joyes, Watson B., Okmulgee*	2,392.62	.....	3,167.95
Johneda Oil Co., Tulsa	5,628.88	.....	7,086.65
Jones, Robert L., Bristow*	3,125.35	46,072	7,977.67
Josey Oil Co., Tulsa	182,444.64	211,587	266,685.40
James, Annie E., Seminole*	.....	.....	3,423.16
K			
Kays, W. O., Shawnee*	.....	.....	3,643.18
Kearney, Robert S., New York, N. Y.*	.....	.....	10,036.35
Keck, Stella and L., Nocona, Tex.*	.....	.....	4,116.29
Killingsworth, Mary E., Seminole*	.....	.....	3,007.82
Killingsworth, Mary Etta, Seminole*	.....	.....	30,131.61
Knappenberger, Frank, Seminole*	.....	.....	15,460.17
Kimmel, J. D., Tulsa*	.....	.....	3,035.43
Knupp Oil Co., Warren, Pa.	4,472.68	.....	5,621.17
Kennedy, S. P., Bradford, Pa.*	1,794.13	.....	2,394.15

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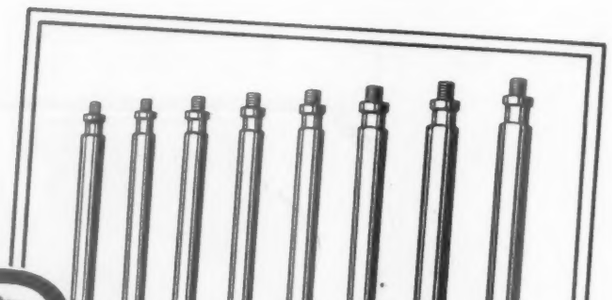
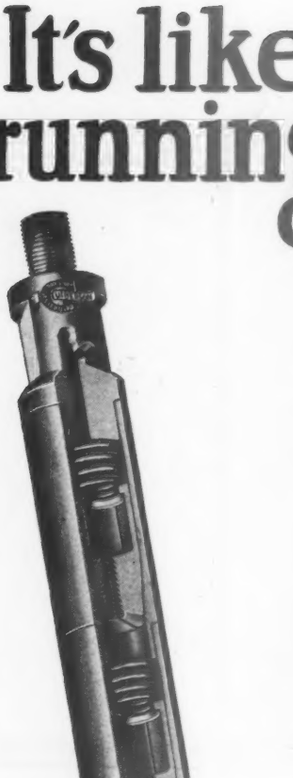
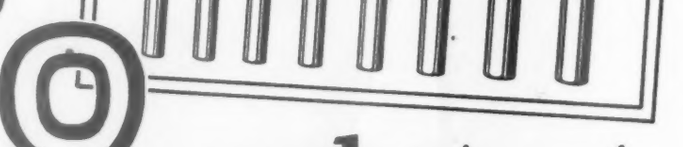




8 sockets at the same time

Since the GUIBERSON Multiple Sucker Rod Socket has *four* sets of slips, each capable of catching *two* sizes of rods, it has the effect of 8 sockets in one. No matter what portion of the rod is presented, it automatically selects its complementary socket and is caught the first trip.



The GUIBERSON Multiple Sucker Rod Socket reduces fishing costs and lost production by reducing fishing time. No feeling around with wrong sized slips—no pulling to change sizes.

Easy to operate. Slips reasonable in price. All slips and shells interchangeable. Fully patented.

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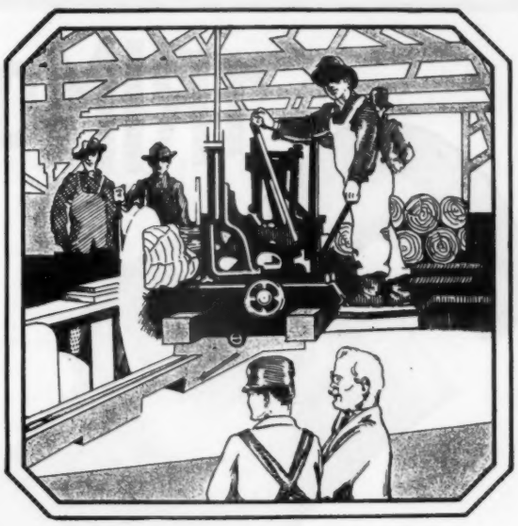
321 Osage St., PONCA CITY
506 Trust Bldg., NEWARK, O.

GUIBERSON

BETTER BE SAFE THAN SORRY

Name and address—	Barrels	M. ft. gas	Amount
Kennedy, J. H., Wetumka*			2,093.51
Kennedy, Gail R., Okemah*	6,579.25		9,203.29
Kennedy, A. D., Okmulgee*	3,267.77		4,460.07
Kennedy, Emma B. and trustee, Okemah*			43,951.91
Knickerbocker Oil Co., Tulsa	8,240.54		11,065.75
Kinney, George, and trustee, Tulsa			5,413.61
Kelly, Albert, Bristow*			3,036.92
Kisner Royalty Co., Garber*			3,188.36
Keener Oil & Gas Co., Tulsa*	1,643.93	5,120	2,396.82
Keener Oil & Gas Co., Tulsa	41,680.02	6,194	50,973.53
Koch, R. J., Checotah*			5,175.09
Kimble, C. C., Beggs			6,677.04
Kewanee Oil & Gas Co., Titusville, Pa.	441,395.62		626,056.32
Kirk Oil Co., Ardmore	7,579.83	26,327	9,851.76
King, J. T., Okmulgee	5,872.39		7,998.11
King, Helen W., Orange, Calif.*			28,246.71
King, Helen W., Orange, Calif.*			8,577.48
Knotts, Sarah J., Stillwater*			16,451.28
Kingwood Oil Co., Okmulgee*	1,493.47		2,006.89
Kingwood Oil Co., Okmulgee	220,282.98	23	296,020.41
Kistler, W. L., Inc., Tulsa*			62,246.83
Kay & Kiowa Oil Co., Tulsa	15,041.68		19,580.43
Kay & Kiowa Oil Co., Tulsa		Gas	434.62
Kiefer, Leroy R., Osceola, Mo.*			3,071.43
King, B. C., and W. A. Delaney, Ada*			2,936.21
Kiker, Vernon L. and Bessie D. Kiker, Wewoka*	6,253.83		8,609.27
Ketch, Frank L., Oklahoma City*	1,588.42		2,349.26
Kunkel, John C., Jr., Tulsa*			2,492.45
Knox, Charles E., Enid	9,889.22		14,916.26
Kay Oil Co., Blackwell	43,261.55		59,882.45
Kisner, R. R., Enid*			3,706.89
Kisner, Minnie L., Enid*			3,706.89
L			
Lilami Oil Corp. (formerly Boggs Oil Corp.), Oklahoma City			26,657.37
Louisiana Oil Refining Corp., Shreveport, La.	105,046.70	1,122	137,607.97
Link Oil Co., Tulsa	12,922.27		17,054.17
Lewis Production Co., Pittsburgh, Pa.	155,059.60		202,539.78
Long, E. E., Prague*			17,579.44
Landon, A. M., Independence, Kans.			10,590.37
Lack, B. D., Wewoka*			33,203.52
Lamb, William, Cleveland*			10,036.50
Large Oil Co., Bartlesville	4,293.75	7,841	6,328.19
Lyons Petroleum Co., Denver, Colo.			44,773.00
Lone Star Gas Co., Dallas, Tex.	14,149.10	134	25,248.99
Lamberton, Park B., Tulsa*	2,807.91		4,152.05
Lambert & Germain, Tulsa*			4,038.68
Lewis, E. Gibson, Tulsa*			2,024.93
Little Nick Oil Co., Chickasha			20,131.29
Lindley, Florence, Sapulpa*			16,110.24
Laughlin, Nancy J., Cushing*			2,779.31
Lambert, C. K., and J. A. Spicer, Okmulgee			14,124.97
Laurel Oil & Gas Co., Tulsa	34,059.46	64,360	45,656.99
Little Fay Oil Co. and J. M. Gillette, Tulsa	4,544.49		6,639.44
Little Fay Oil Co., Tulsa	37,139.08	7,937	49,172.07
Livingston, W. S., Seminole*			25,944.92
Lohman, John, Altus*			6,741.42
Lewis, A. W., Ollie, Mont.*	4,900.32		6,827.99
Love, L. H., Ardmore	2,381.54	23,801	5,132.18
LeFlore County Gas & Electric Co., Poteau		486	12,438.71
Lawson, E. B., Nowata	4,386.03		5,450.03
Laidlow, Isabella W., New York, N. Y.*			1,981.76
Laughlin, W. T., Oklahoma City*			6,731.13
Lyles, Dewey Y., Ardmore*			11,368.28
Lebow, C. H., Tulsa*	8,412.64		10,978.49
Lima Oil & Gas Co., Bartlesville	7,168,658		57,887.14
Lytal, Henry, Oklahoma City*			2,959.25
Longacre, C. C., Shawnee*			6,749.00
Ingram, H. L. and Martha Lee, Earlsboro			13,664.80
Laselle, T. E., Ada*	14,759.48		19,107.35
Lambert, C. K., and J. A. Spicer, Okmulgee			37,216.34
Livermore, W. H., Inc., Chickasha*			2,236.15
Lacy, O. L.*			2,001.91
LaForce & Ferguson, Limon, Colo.*			3,413.12
M			
Miller Brothers 101 Ranch, Marland*			17,662.48
Mountain Fork Oil Co., Okmulgee			6,568.16
Murphy & Frank, Tulsa*	6,389.84		8,394.55
McCulloch Oil Co., Okmulgee	236,577.85	96,047	332,227.40
McKee, S. H., Tonkawa*			4,940.45
Marland Employes Royalty Co., Ponca City*			64,212.74
Myers, Alice Clark, Santa Fe N. Mex.*			6,006.80
McBirney, J. H., Tulsa*	1,561.22		2,184.35
M. T. C. Oil & Gas Co., Tulsa	120,950.80		192,344.27
Magnolia Petroleum Co., Dallas, Tex.*			9,442.91
Magnolia Petroleum Co., Dallas, Tex.	2,399.63		3,208.04
Magnolia Petroleum Co., Dallas, Tex.*			2,215.69
Magnolia Petroleum Co., Dallas, Tex.*	2,020.77		2,653.05
Magnolia Petroleum Co., Dallas, Tex.*	2,020.79		2,653.05
Magnolia Petroleum Co., Dallas, Tex.*			11,163.11
Magnolia Petroleum Co., Dallas, Tex.	8,331.97		
Magnolia Petroleum Co., Dallas, Tex.*	2,819.04		3,757.18
Magnolia Petroleum Co., Dallas, Tex.*	12,291.27		16,294.44
Magnolia Petroleum Co., Dallas, Tex.*	3,567.84		4,760.27
Magnolia Petroleum Co., Dallas, Tex.*	1,993.99		2,431.48
Magnolia Petroleum Co., Dallas, Tex.*	3,566.05		4,533.86
Magnolia Petroleum Co., Dallas, Tex.*	2,827.71		3,969.10
Magnolia Petroleum Co., Dallas, Tex.*	6,848.62		28,518.75
Magnolia Petroleum Co., Dallas, Tex.*	61,310.44		76,843.71
Magnolia Petroleum Co., Dallas, Tex.	2,968.79	9,359	4,392.19
Magnolia Petroleum Co., Dallas, Tex.	3,322,434.22	20,814,844	4,296,503.51
Magnolia Petroleum Co., Dallas, Tex.	47,940.31	30,198	64,643.76
Martindale, E. B., Muskogee*			2,267.85
Meridian Gas Co., Dallas, Tex.		227,856	18,596.12
McQueen, I. R., trustee, Oklahoma City*	17,098.71		22,689.05
Midwest Gas Co., Tulsa		316,703,510	14,192.46
McDougal, D. A., Sapulpa*			2,473.74
McDaniels, W. F., Blackwell			4,186.26
Merrick, Inc., F. W., Ardmore			33,287.93
Meyer, Annie, Sapulpa*			4,589.63
Mashburn, Winnifred G., Ardmore*	1,783.72		2,157.27
McDonald, Henry, New York, N. Y.*			3,507.03
Metcalf, R. J., Fort Worth, Tex.*	4,046.51		5,551.48
Meier, Rosa and John, Winfield, Kans.*			2,527.75
Meier, Hulda, Enid*			2,527.75
McMahon, C. L., Tulsa	5,872.39		7,998.11
Moore, J. Read, Wewoka*			3,509.52
McVey, H. W., Tulsa*			2,078.77
Melton, B. F., Duncan*			3,677.38
Mahoney, Sarah J., Tonkawa*			4,344.69
Mudge Oil Co., Pittsburgh, Pa.	19,285.31		20,249.97
Moody, L. W., and Helen Moody, exec., Shawnee*			5,897.87
Mid-Kansas Oil & Gas, Findlay, Ohio	230,214.74	211	309,800.99
Mid-Kansas Oil & Gas, Findlay, Ohio*	1,597.82		2,130.85
McAlester, Mada, Holdenville*			2,939.76
M. T. C. Oil & Gas Co., Tulsa	25,642.24	785	35,578.43
McCune, L. J., Tulsa*	4,136.62		5,426.42
Minshall, E. R., Tulsa	6,430.95	2,927	8,719.68
McNeill & Harris, Wichita Falls, Tex.			10,251.47
Monarch Royalty Co., Kansas City, Mo.*			61,648.47
McQueen, I. R., Oklahoma City			6,396.67
McQueen, I. R., Oklahoma City*	10,969.25		14,733.84
Murphy, J. F., Sapulpa*			10,579.12
Mullendore, E. C., Cleveland			34,128.25
Mullendore, E. C., Cleveland*			3,522.67
Mullendore, Jennie, Cleveland			21,136.20
Milner, Jonas B., Allen*			5,219.34
Misener, F. D., Tulsa	10,085.05	6,983	13,346.04
McMan Oil & Gas Co., Tulsa	72,197.04		103,225.59
McGraw Oil Co., Tulsa	35,671.09		33,934.00
Markham, J. H., Jr., Tulsa	20,093.06		25,734.00
McDonough, W. W., Wewoka*			7,932.65
Merick, F. W., & Coe, trustees, Ardmore	16,238.03		19,751.30
Mohan Oil Co., Tulsa	5,697.56	17,988	9,008.30
Mul-Berry Oil Co., Cushing	28,662.06	208	58,157.28
McNamara, L. J., Seminole*			2,150.30
Inturff, A. C., Morris*			4,006.23
Maxey, J. H., Oklahoma City*			3,824.55
Mayes, E. L., Earlsboro*			59,994.73
Million & Thomas, McAlester*	4,296.81		5,246.77
Merkley, W. A., Brooklyn, N. Y.*			5,203.76



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Electric Railway *Standard No. 4*

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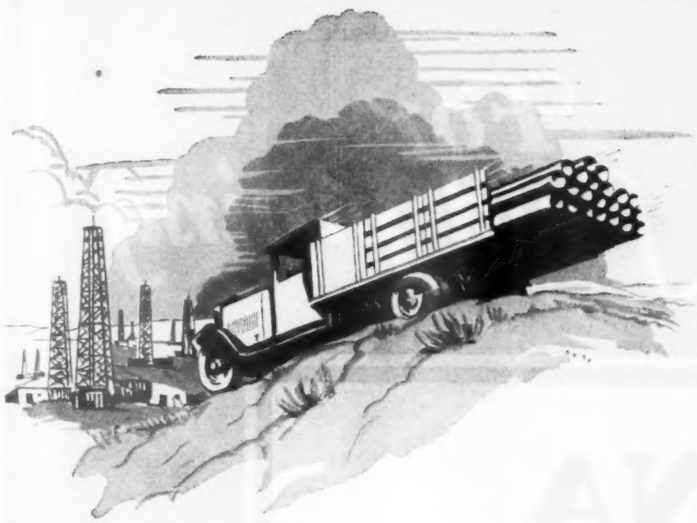
For Forty Years The Leading Wrench Makers Of America

Other Trustworthy TRIMO Tools:

TRIMO Pipe Vises, Pipe Cutters, Monkey Wrenches and Chain Wrenches

Name and address—	Barrels	M. ft. gas	Amount
Marshall, V. M., Tulsa	41,243.21	.....	56,465.51
Magee & Stipe, Electra, Tex.	.....	.....	5,161.05
Marileen Oil & Gas Co., Blackwell	9,915.94	.....	13,434.60
Mason, D. B., Tulsa	.....	.....	18,672.35
McAdoo, Eleanor W., Washington, D. C.	.....	.....	2,297.87
Malernee Oil Co., Oklahoma City	.....	.....	12,925.45
McMechan, W. F., Tulsa*	.....	.....	3,164.33
Moseley, C. F., Bartlesville	.....	.....	6,114.01
McMahon Royalties Co., San Antonio, Tex.*	.....	.....	5,291.04
McMahon, C. L., and C. L. McMahon, Inc., Tulsa*	.....	.....	30,147.34
McMahon, C. L., and C. L. McMahon, Inc., Tulsa	31,681.62	.....	45,789.67
Mayhue, George M., Ada*	.....	.....	27,386.35
Margay Oil Corp., Tulsa	360,909.36	.....	481,712.15
Mid-Continent Petroleum Corp., Tulsa	1,571,226.17	.....	2,099,552.50
Mid-Continent Petroleum Corp., Tulsa*	7,889.30	.....	9,388.99
Mid-Continent Petroleum Corp., Tulsa	.....	.....	99,895.00
Morgan, Dudley D., Tulsa*	.....	.....	3,762.51
Minnehoma Oil & Gas Co., Tulsa	192,789.81	210,717	282,043.25
McGuire, Marcus W., Los Angeles, Calif.*	.....	.....	24,775.35
McGuire, Marcus W., Los Angeles, Calif.*	.....	.....	4,071.75
McGuire, Marcus W., Los Angeles, Calif.*	.....	.....	3,667.51
MacDonough, J. M., New York, N. Y.*	.....	.....	5,728.29
Moore, Clint, estate, Tulsa	.....	.....	20,367.23
Moore, E. H., Tulsa*	1,843.31	17,548,281	3,180.98
Mountain State Oil Co., Bartlesville	.....	.....	24,990.57
Marland Oil Co., Ponca City	.....	1,339,441	56,641.31
Marland Oil Co., Ponca City	593,422.16	.....	817,826.22
McBride, W. C., Inc., St. Louis, Mo.*	.....	.....	5,196.40
Mealy, S. R., Tulsa*	.....	.....	35,653.48
N			
National Union & Gas Co., Blackwell	4,554.25	19,725	7,606.99
Nelson, F. M., New York City	6,563.93	.....	8,038.68
Nester Oil Co., Alex*	3,826.45	.....	5,434.12
Norwood Oil Co., Tulsa	8,378.36	.....	10,268.74
Nowata Oil & Refining Co., Tulsa	.....	.....	11,895.38
Norvell, Spencer, Wewoka*	.....	.....	2,369.78
Norvell, A. S., Wewoka*	.....	.....	10,758.54
Noble, Mrs. Hattie, Ardmore*	.....	.....	3,817.42
Noble, Mrs. Eva E., Ardmore*	.....	.....	5,080.30
Noble, Charles F., Tulsa	.....	.....	5,081.89
Novotney, James A., estate, Tonkawa*	.....	.....	7,132.83
North, R. B., Blackwell*	.....	.....	5,107.45
Norton, W. A., Amaret, Mo.*	1,577.55	.....	2,585.89
Newstadt, Walter, Ardmore	5,280.13	.....	6,760.62
New Royalty Co., Ponca City*	3,346.00	.....	5,015.52
Norris, W. C., Tulsa	.....	.....	14,589.72
Nowata Oil & Refining Co., Tulsa	.....	.....	11,895.00
Noble Oil & Gas Co., Tulsa	3,193.34	1,513	4,061.28
North Central Texas Oil Co., Inc., New York City	.....	.....	7,168.78
Nichols, G. A., Oklahoma City*	.....	.....	5,028.43
Nelson, R. L., Tonkawa*	.....	.....	4,518.88
Newby, Errett R., Oklahoma City*	.....	.....	2,015.96
Neelly, John E., Tulsa	1,723.07	.....	2,458.50
New York Petroleum Royalty Corp., New York City	4,470.21	.....	5,634.76
National Oil & Dev. Co., Tulsa	7,384.29	.....	8,381.88
O			
Orwig, S. S., Wewoka*	.....	.....	41,348.63
Osage Development Co., Bartlesville	5,329.53	.....	6,601.17
Oil State Petroleum Co., Enid	9,081.39	2,750	13,379.56
Oil State Petroleum Co., Enid*	14,311.54	.....	19,376.74
Osage Gas Prod. Co., Independence, Kans.	373.70	841	76,178.98
Olean Petroleum Co., Bristow	.....	.....	19,263.14
Oklahoma Gas Utilities Co., Chickasha	.....	.....	44,017.71
Omega Oil Corp., Shreveport, La.*	.....	.....	4,581.78
Ollie B. O'Dell, Richmond, Calif.*	.....	.....	26,116.06
Oklahoma Natural Gas Corp., Tulsa	.....	.....	66,165.00
Ona Oil Co., Blackwell	8,982.64	214	28,571.32
Osborn, W. B., Ada*	.....	.....	5,804.02
Owen, Mary Severs, Muskogee*	.....	.....	3,866.66
O'Neal, J. M., Tecumseh*	.....	.....	2,002.92
Oppenheim, August Rust, New York City*	.....	.....	49,608.24
Osage Syndicate, Inc., Tulsa	4,224.14	.....	5,405.52
Oklahoma Co., Philadelphia, Pa.	.....	5,853	5,853.75
Ohio Royalty Co., Tulsa*	.....	.....	9,654.11
Oliphant, A. G., Tulsa	30,663.22	.....	36,325.15
Ohio Fuel Oil Co., Charleston, W. Va.*	18,632.13	.....	24,083.01
Owen, Ona G., Oklahoma City*	.....	.....	2,576.61
P			
Papoose Oil Co., Tulsa	21,971.23	28,214	33,176.20
Pounder, H. C., Tulsa	.....	.....	6,209.35
Paragon Oil Co., Tulsa	4,291.18	3,780	6,230.99
Patrick, M. C., Shawnee*	.....	.....	4,915.50
Page, Charles, trustee, Tulsa	.....	.....	5,956.35
Pawnee Oil Prod. Co., Tulsa	.....	.....	6,092.00
Palmer, S. T., Okemah*	.....	.....	8,549.95
Perpetual Royalty Income Co., Rock Island, Ill.*	1,754.16	.....	2,896.42
Pontiac Oil Co., Sapulpa	.....	.....	17,397.67
Pioneer Petroleum Co., Tulsa	14,366.30	.....	17,312.23
Plymouth Petroleum Co., Tulsa	6,326.77	.....	8,323.68
Plymouth Petroleum Co., Tulsa	4,380.24	.....	5,599.55
Pierce, M. T., Ardmore*	.....	.....	2,324.36
Price, F. D., Okemah*	.....	.....	3,491.02
Plover Drilling Co., Tulsa	6,565.70	.....	8,860.01
Pyramid Oil Co., Winchester, Ky.	6,282.12	.....	7,674.01
Pennok Oil Corp., Tulsa	34,037.78	.....	46,058.66
Petroleum Royalties Co., Tulsa*	.....	.....	96,473.75
Peters Petroleum Corp., Tulsa	77,713.79	250	112,190.35
(2nd quarter report delinquent)			
Petroleum Investment Co., Fort Worth, Tex.	5,747.31	.....	6,034.68
Petroleum Right Corp., New York City*	.....	.....	10,611.93
Petroleum Co., Tulsa	4,266.22	6,990	5,762.61
Petroleum Co. and M. H. Mosier, Tulsa	11,612.43	8,818	14,423.26
Peerless Oil & Gas Co., Indiana, Pa.*	22,164.63	.....	32,217.77
Plains Petroleum Co., Inc., Tulsa	24,384.81	.....	32,886.54
Pugh, M. W., Marlow	10,570.85	.....	13,346.62
Privett Drilling Co., Maramec	.....	.....	10,074.19
Producers Oil Co., Tulsa	7,049.39	.....	8,727.32
Provident Royalty Corp., Tulsa*	17,090.73	.....	24,041.31
Price, N. J. and Alpha, Okemah	.....	.....	5,105.47
Pauline Oil & Gas Co., Oklahoma City	12,307.69	.....	16,886.09
Poland, R. P., Ardmore*	2,304.17	.....	2,864.92
Priboth, Lillie M., Blackwell*	1,609.90	.....	2,364.07
Priboth, F. F., Blackwell*	.....	.....	2,361.58
Phillips, Howard W., Kansas City, Mo.*	1,923.33	.....	2,477.92
Pure Oil Co., Chicago, Ill.	.....	Gas	107,400.33
Pure Oil Co., Chicago, Ill.	1,948,777.60	.....	2,604,458.18
Producers & Refiners Corp., Denver, Colo.	119,392.30	.....	84,746.67
Producers & Refiners Corp., Denver, Colo.	.....	.....	8,129.05
Philmack Co., Tulsa	79,909.47	.....	112,724.92
Phillips, W. G., and J. B. Milam, Chelsea	21,718.54	.....	27,273.79
Phillips Petroleum Co., Bartlesville	786,810.74	.....	1,201,244.88
Prairie Oil & Gas Co., Independence, Kans.	3,612,045.62	.....	4,791,092.65
Prairie Oil & Gas Co., Independence, Kans.	.....	2,846	166,559.65
Pine, W. B., Okmulgee	32,854.76	.....	56,704.60
Pine, W. B., and Phillips Petroleum Co., Okmulgee	6,344.16	.....	8,754.96
Peters Petroleum Corp., Tulsa	82,116.99	10,418	106,422.14
Peerless Oil Producing Co., Tulsa	29,309.83	.....	45,194.58
Paraffine Oil Co., Houston, Tex.	8,450.28	.....	10,333.83
Pierce Petroleum Corp., Sand Springs	35,214.14	.....	44,158.62
Pierce Petroleum Corp., Sand Springs	13,332.91	.....	16,824.21
Pierce Petroleum Corp., Sand Springs	.....	41	8,401.30
Pierce Petroleum Corp., Sand Springs	.....	2,206	441.33
Pierce Petroleum Corp., Sand Springs	.....	.....	5,188.75
Phillips, Rosa M., Davis*	21,423.85	.....	26,865.30
Papoose Oil Co., Tulsa	7,428.52	9,005,500	11,789.57
Patterson, J. A., Wewoka*	2,095.60	.....	2,781.31
Pawhuska Oil & Gas Co., Pawhuska	.....	68	10,497.70
Peddycoart, B. R., Duncan*	.....	.....	3,675.47
Permitter, Henry, Earlsboro*	.....	.....	5,863.40
Potts, Mable Dale, Yale*	.....	.....	6,313.04
Parker, Ed, Wewoka	2,682.45	.....	3,460.59
Perry, C. J., Shawnee*	.....	.....	2,197.14
Pringle, J. A., trustee for Fox Royalty Co.	.....	.....	7,744.17
Pharoah, O. J., Henryetta*	.....	.....	8,382.95
Q			
Quinton Spelter Co., Quinton	.....	.....	8,609.34
Quinton Relief Oil & Gas, Quinton	.....	.....	10,804.23
Quimby, John, Montebello, Calif.*	6,584.05	.....	8,758.84
Quinnett, A. E., Shawnee*	.....	.....	2,484.23



Speed On Every Road—Strength In Every Part

There's greater *speed* in the sturdy 6-cylinder engine of the new Heavy Duty Speed Wagon because:

1

Overhead inlet valves of larger diameter get the gas into the cylinders more quickly.

2

A turbulence type cylinder head secures more perfect combustion.

3

The lightness of reciprocating engine parts utilizes every ounce of power to greatest advantage.

With this speed goes the *strength* that comes from faultless materials, painstaking inspection and superior chassis balance.

Try out the Heavy Duty Speed Wagon —start it, step on it and stop it today.

REO MOTOR CAR COMPANY, *Lansing, Michigan*

SPEED WAGON

A Speed Wagon for Every Trucking Need

New Speed Wagon Prices for Chassis at Lansing

JUNIOR
Capacity ¾ ton,
Chassis, $895

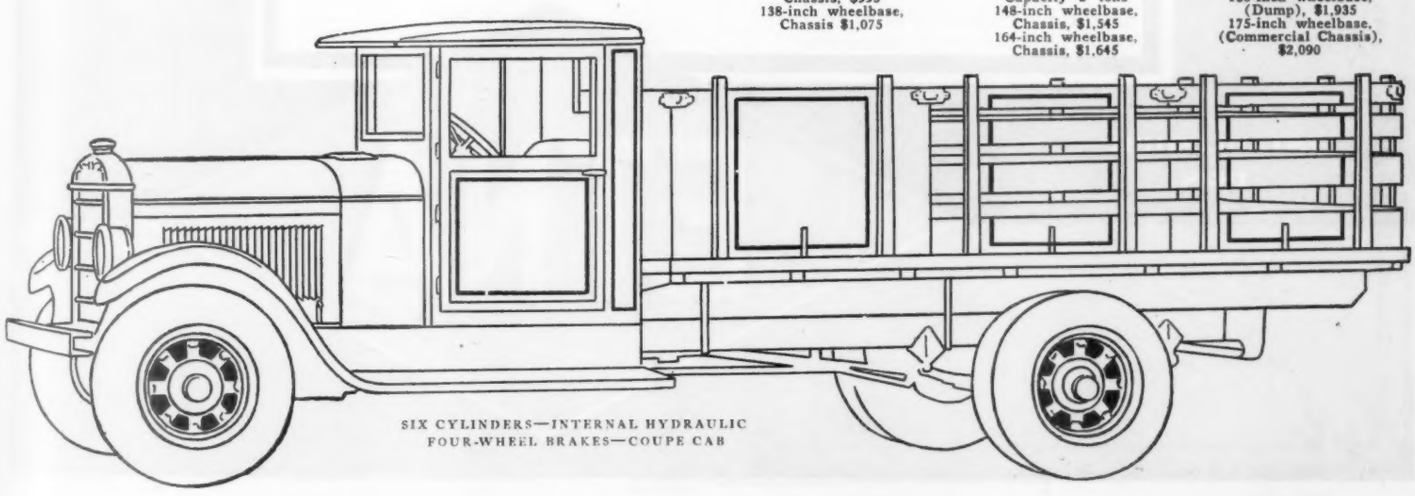
TONNER
Capacity one ton,
123-inch wheelbase,
Chassis, $995
138-inch wheelbase,
Chassis $1,075

STANDARD
Capacity 1½ tons,
133-inch wheelbase,
Chassis, $1,245
148-inch wheelbase,
Chassis, $1,345

MASTER
Capacity 2 tons
148-inch wheelbase,
Chassis, $1,545
164-inch wheelbase,
Chassis, $1,645

GENERAL UTILITY
Capacity 1½ tons.
143-inch wheelbase,
Chassis, $1,345

HEAVY DUTY
Capacity 3 tons
159-inch wheelbase,
Chassis, $1,985
130-inch wheelbase,
(Dump), $1,935
175-inch wheelbase,
(Commercial Chassis),
$2,090



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FOUR-WHEEL BRAKES—COUPE CAB

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WELDED STEEL TUBULAR PRODUCTS

SIZES ⅛" TO 24" O.D.

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Southwest Supply Company - Bartlesville, Okla.
Superior Tube Company - - - Tulsa, Okla.
Atlas Supply Company - - - Muskogee, Okla.
Hercules Supply Company - - - Dallas, Texas
Keystone Pipe & Supply Company - Butler, Pa.
McEwen Bros. - - - - - - Wellsville, N. Y.
Diamond Supply Company - Charleston, W. Va.

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PITTSBURGH, PA.

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Mills:

ETNA, PA. SHARPSBURG, PA.

ESTABLISHED 1828

ETNA

R

Name and address—	Barrels	M. ft. gas	Amount
Roxana Petroleum Corp., St. Louis, Mo.		1,167,176	53,423.11
Roxana Petroleum Corp., St. Louis, Mo.	1,178,067.66		1,566,076.02
Reed, Isabelle S., Neosho, Mo.*	57,444.97		78,705.16
Reed, Frank H., Neosho, Mo.*	57,444.97	5,829,712	97,038.34
Robinson, E. L., Tulsa	6,718.73		8,955.35
Robinson, E. L., Tulsa	5,754.70	1,596	7,709.33
Robinson, E. L., Gibson & Zahniser, Tulsa	3,432.12	20,462	6,554.06
Roberts, Thomas C., Ardmore	6,757.47		9,816.10
Roberts, Thomas C., Ardmore*	1,843.90		2,273.49
Ryan Consolidated Petroleum Corp., Bartlesville	7,794.87	1,229	10,419.16
Robertson, B. H., and H. W. Reed, Nowata			6,145.45
Red Bank Oil Co., Tulsa	14,036.39		18,660.74
Royalty Inv. Syndicate, New York City*			13,942.46
Ruppert, Jacob, New York City*			3,270.85
Roscoe, M. L., Tulsa*			17,426.56
Reed & Harmon, Nowata	6,877.85		7,289.59
Riverside Oil & Refining Co., Tulsa (1924, 1925, 1926 and 1927 Reports, combined)	176,154.46		344,342.76
Riverside Oil & Refining Co., Tulsa	51,032.10		101,520.95
Riverside Oil & Refining Co., Tulsa	216,543.34		436,986.47
Riverland Co., Tulsa*			5,763.06
Riverland Co., Tulsa	130,727.06	102,287	190,396.45
Ramsey, W. R. and W. E., Oklahoma City			162,570.42
Roberts, George D., Tulsa			18,305.00
Ray, Joe, Bradley*	7,233.43		8,724.07
Ray, Joe, Bradley			7,072.56
Rippy, Max, Shawnee*			3,801.65
Richards, C. L., Tulsa*			8,246.91
Roberts, Richard J., Wewoka*			17,079.72
Robins, J. W., Fort Worth	12,271.62		14,245.64
Rainey, Robert M., Oklahoma City*			3,084.26
Ramsey, Dack, Ripley*			6,425.98
Rath, C. E., Independence, Kans.	4,858.58		6,156.43
Randall, W. S., Oklahoma City	8,631.92		9,361.71
Reed, Frank, Seminole*			2,902.46
Rex Oil & Gas Co., Winchester, Ky.	6,282.12		7,674.01
Reliance Oil Co., Houston, Tex.	4,735.40		8,287.98
Reliance Oil Co., Houston, Tex.	3,701.73		4,466.05
Rena Ray Co., Tulsa*			15,338.18
Reed, Eulahmae, Wewoka*			7,804.79
Regal Oil & Gas Co., Tulsa			15,647.79
Replogle & Johnston, Oklahoma City*			6,281.79
Rickey, L. D., Ardmore*	2,560.13		3,157.09
Riddle, H. T., Seminole*			4,453.90
Ringling, Mabel, Ardmore*			2,528.68
Ritts, Leonard C., Tulsa*	1,755.44		2,478.57
Richards & Roberts and Joseph C. Looney, Wewoka*			2,646.74
Rockland Oil Co., Ardmore			39,578.00
Roy Oil Co., Alex*			4,825.86
Rockwell, J. A., Warren, Pa.*			26,940.17
Reiter-Foster Oil Corp., Tulsa			7,158.57
Rubana Oil Co., Sayre	55.66	121	6,153.14
Russell, Dora C., Duncan*			3,626.72

S

Selby Oil & Gas Co., Tulsa	38,567.33		45,591.82
Selby Oil & Gas Co., Tulsa*			3,505.26
Sidwell Drilling Co., Sapulpa	5,860.22		7,670.29
Simpson, J. R., executor, Seminole*			13,998.29
Shaffer, C. B., Chicago, Ill.	14,780.56		17,587.17
Sparks, L. O., administrator of Samuel Gilbert estate, Oklahoma City*			41,851.36
Sparks, Harriett, Earlsboro*			18,881.10
Smith, G. J., Tulsa*			12,339.00
Sykes, C. E., Ardmore*			3,072.29
Smith, G. J., Tulsa*	7,237.69		9,823.52
Swenson, Mary and Gus, Arkansas City, Kans.*			2,647.60
Seay, Clyde and W. D., Oscar*	2,136.00		2,679.36
Stubblefield, J. T. and Margaret, Holdenville*			23,636.89
Sukovaty, Anna, Bristow*			2,190.88
Sukovaty, Peter, Bristow*			2,190.88
Summer, Jack, Muskogee*			2,878.20
Snyder, Charles A., Sapulpa*			2,423.57
Schenwald, Morris, Tonkawa*			5,820.81
Sarasota Oil Co., Ardmore*	4,792.97		5,617.97
South Bend Oil Corp., Tulsa			13,560.42
Sheldon Oil Co., Tulsa			6,086.34
Smith, John, Wetumka*	1,688.30		2,279.54
Schmidt, H. E., Columbus, Ohio*	4,650.86		6,634.77
Strough, Arlie E., Davenport*			3,017.47
Summers, Mrs. George, Tonkawa*			3,119.01
Shellenberger, F. A., Marietta*			2,007.76
Skelton, L. K., estate of, Okmulgee	1,714.93		5,512.03
Stone, M. R., trustee, Hawarden, Iowa*	3,241.75		3,501.64
Shimp, Ira, Dilworth*			7,092.07
Surber, O. B., Chickasha*			2,836.50
Standridge, John H., Lexington*			4,977.18
Spaugy, H. J., Trousdale*			3,677.96
Steinpfad, R. A., Shawnee*			12,562.71
Sturgeon, L. L., Wewoka*			4,205.80
Shade, R. S., Tulsa			15,492.01
Sharum, Marie A., Ripley*			3,074.07
Sharum, B. E., Ripley*			5,742.00
Sharp, Robert C., Tulsa	7,908.40		10,574.40
Stewart, Clyde, McAlester*			2,319.41
Smith, H. E., Rush Springs*			2,209.39
Sheridan Oil Co., Tulsa	17,118.33	33	25,629.69
Superior Oil Corp., Tulsa	105,469.78		151,526.58
Seneca Royalties Co., Oklahoma City*	1,889.96		2,736.72
Stell, M. F., Tulsa*			2,164.58
Sneed, R., Tulsa*			2,171.50
Simms Oil Co., Dallas, Tex.	18,716.34	15	26,199.68
Schumacher, Amanda, Orange, Calif.*			2,514.45
Sulzberger, Dr. H., New York City*			10,682.76
Schermerhorn Oil Co., Tulsa	4,645.04	84,984	12,055.83
Simpson Fell Oil Co., Ardmore	34,111.71		41,896.16
Shannon, L. O., Stillwater*			6,568.57
Skelton-Moore Oil Co., Bartlesville	6,099.47		7,625.00
Sinclair Oil & Gas Co., Tulsa	3,289,676.24		4,482,843.05
Sinclair Oil & Gas Co., Tulsa		3,440	136,205.33
Simpson, W. E., St. Louis, Mo.*	2,158.07	5,643	2,871.19
Simpson, A. O., Ardmore*	2,158.07	5,643	2,871.19
Seay, O. W., Ryan*			13,286.19
Snowden & McSweeney Co., New York City	22,482.24		28,510.00
Skelly, W. G., Tulsa	4,558.85		5,411.58
Skelly Oil Co., Tulsa	730,399.03		950,783.28
Skelly Oil Co., Tulsa*			5,674.14
Skelly Oil Co., Tulsa		752	67,770.79
Skelly Oil Co., Tulsa		16,348	1,634.82
Slick, Tom, Inc., Oklahoma City*	29,290.38		38,842.35
Slick, Tom, Inc., Oklahoma City	354,527.81	78,641,960	521,810.39
Slick, T. B., Clarion, Pa.	255,003.76	22,916,358	370,961.87
Slick, T. B., Clarion, Pa.	38,819.92		30,737.06
Schermerhorn, J. B., Inc., Minneapolis, Minn.*	3,166.30		3,825.08
Schermerhorn, J. B., Inc., Minneapolis, Minn.	81,941.17		101,497.82
Schermerhorn-Ardmore Co., Minneapolis, Minn.	79,435.14		95,425.02
Sunrise Oil Corp., Oklahoma City*			16,830.33
Southwest Producing Co., Bristow		217,924	17,433.93
Shaffer, J. K. D., Oklahoma City*			3,554.72
Shaffer Oil & Refining Co., Tulsa	312,971.82	Gas	495,109.58
Shaffer Oil & Refining Co., Tulsa*			35,443.08
Sinclair, H. F., New York City*			10,903.48
Sinclair Oil & Gas Co., Tulsa		3,440	136,205.33
Savoy Oil Co., Tulsa	14,272.49		17,274.42
Savoy Oil Co., Tulsa		15,113	18,726.02
Sterling Oil & Gas Co., Abilene, Tex.			19,388.25
Sure Oil Corp., Tulsa	4,398.65	7,262	5,968.39
Sun Royalty Co., Tulsa*	33,698.74		43,573.78
Sunray Oil Co., Tulsa	25,257.57		39,858.21
Sapulpa Refining Co., Denver, Colo.	25,590.60	14,494	35,412.10
Shutzer Bros., Denver	5,316.70		6,260.52
Snellings, C. C. and C. E., Shawnee			3,407.42
Scott, Lucy B., Holdenville*			2,934.21
Sparks, O. S., Ardmore*			2,990.28
Sweep, J. F. and Florence, Oilton*			2,307.33
Sandford, Edwin, Oklahoma City		27,936	2,793.50
Schonwald, Dave, Blackwell*			7,746.10
Spencer, T. J., Wewoka*			2,930.99
Spencer, T. J., Wewoka			29,065.04
Stephenson, Logan, Okemah*			2,529.57
Seminole Oil Co., Tulsa*			18,792.20
Strothers, O. D., Tulsa	17,562.95		22,145.62
Strothers, O. D., Tulsa			23,432.97

NEILAN

BALL BEARING

REDUCING

REGULATOR

No. 35

Frictionless - Sensitive - - - Accurate - - -

Neilan Ball Bearing Frictionless Regulators have been designed for service as pump governors, compressor governors, reducing regulators, back pressure regulators, and relief valves. Extreme accuracy and supersensitiveness are assured through the elimination of friction, side-thrust, sticking and binding by means of the ball bearings.

Long springs of large diameter and great flexibility produce great valve travel for slight changes in pressure on the diaphragm, thereby making the regulators extremely sensitive, accurate and reliable.

The diaphragm and stem float in ball bearings, thus eliminating practically all friction. The spring rests on a ball-bearing plate over the adjusting screw, which may be turned without twisting the spring. Once adjusted the regulator requires no further attention.

The capacity of the valves is equal to the pipe with only a slight drop in pressure. Large ports with ample clearances permit free and unobstructed flow.

No. 35 is a reducing regulator suitable for inlet pressures up to 400 pounds, and outlet pressures from 4 ounces to 200 pounds. No. 36 is a back pressure regulator suitable for back pressures from 4 ounces to 200 pounds.

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"You Can Be Sure of Neilan Products"

Billions of Bubbles

"Yep—production is sure jumping"

"Since we put in those Campbell Oil-Froth Absorbers our gasoline production has been climbing to beat the band—and from the same amount of natural gas. Seems uncanny the way this plant is turning out gasoline. Believe me, Campbells do the stuff."

J. A. Campbell
Natural Gas Engineer
Consulting—Designing—Constructing
P. O. Box 669 LONG BEACH, CALIF.

Campbell Oil-Froth Absorbers

Name and address—	Barrels	M. ft. gas	Amount
Shirley, Gracie I., Tulsa*	.....	.....	2,315.53
Smith, M. T., & Son, Oklahoma City	7,847.20	.....	8,510.63
Simons, I. D., Tulsa	.....	.....	7,214.95
Spring Oil Co., Independence, Kans.	3,895.03	.....	5,023.37
Smith, C. R., estate, Ardmore	28,952.77	125,916	47,049.75
Simon, Mrs. Bettie, Oklahoma City*	.....	.....	2,142.19
Swindler, James A., Muskogee	7,113.38	.....	9,574.89
Spencer, Alice and T. J., Wewoka*	.....	.....	29,068.04
Stekoll, Harry, Tulsa	4,185.72	.....	5,255.54
Slough, E. D., Ardmore*	.....	.....	6,003.92
Schoenfeld, C. H., and J. H. Markham, Jr., Tulsa	2,280.07	.....	3,007.05
Sowards, Fred and Willard, Stroud*	.....	.....	3,061.98
Smith & Stinberger, Tulsa	1,534.94	1,985,225	4,067.95
Smith, Bert N., Oklahoma City*	.....	.....	6,045.03
Schroeder, Walter, Enid*	.....	.....	2,527.75
Schroeder, M. H., Enid*	.....	.....	2,527.75
Schroeder, Oscar, Enid*	.....	.....	2,527.75
Schroeder, Henry, Enid*	.....	.....	2,527.75
Schroeder, Paul, Enid*	.....	.....	2,527.75
Schroeder, Caroline, Enid*	.....	.....	2,527.75
T			
Tull, Vida M., Yale*	.....	.....	11,910.84
Tibbens, C. G., Tulsa	.....	.....	45,860.62
Turman Oil Co., Tulsa	5,607.77	10	7,107.93
Turman Oil Co., Tulsa	142,815.07	1,020,783	227,122.51
Tams, J. F., New York City*	.....	.....	2,258.49
Tams, Blanche E. S., New York City*	.....	.....	2,148.21
Tiger Petroleum Corp., Tulsa	9,155.34	.....	11,615.46
Todd, R. H., Wewoka*	.....	.....	2,378.98
Thompson, Roy B., Tulsa*	.....	.....	6,707.97
Thompson, W. M., Tulsa*	.....	.....	6,832.21
Tully, Martha Nadine, Muskogee*	.....	.....	2,394.62
Thomas, Hazel B., Norge*	.....	.....	2,061.71
Twin State Oil Co., Tulsa*	32,899.88	.....	44,701.04
Twin State Oil Co., Tulsa	987,192.76	Gas	1,185,712.67
The Texas Company, producing department, Tulsa	2,256,933.21	.....	2,991,088.73
The Texas Company, producing department, Tulsa	.....	Gas	87,300.14
The Texas Company, producing department, Tulsa*	.....	.....	23,846.77
Tidal-Osage Oil Co., Tulsa	.....	.....	13,660.16
Tidal-Osage Oil Co., Tulsa	473,977.54	.....	627,908.26
Taylor, Dr. Joseph C., New York City*	.....	.....	4,747.16
Tidal Oil Co., partners of, Tulsa	7,514.01	.....	9,085.96
Tidal Oil Co., Tulsa	6,950.16	.....	8,327.05
Tidal Oil Co., Tulsa*	11,662.37	.....	14,469.64
Tidal Oil Co., Tulsa	731,918.72	.....	940,241.37
Tidal Oil Co., Tulsa	.....	Gas	33,774.98
Turner, K. B., Eufaula*	.....	.....	2,080.08
Thomas, A. M., Tonkawa*	.....	.....	3,856.24
Turman, Bessie, Okmulgee	51,068.57	.....	70,488.89
Thornton, David P., Muskogee*	.....	.....	2,691.56
Texas Pacific Coal & Oil Co., Thurber, Tex.	109,937.18	.....	118,951.70
Tedray Corp., Tulsa	.....	.....	9,577.57
Thlocco Oil Co., Tulsa	11,573.78	.....	16,368.37
Tucker, F. E., Ardmore*	1,913.49	.....	2,415.79
Thompson, J. N., Tulsa*	1,356.44	.....	1,979.86
Thompson, S. F., Okemah*	.....	.....	4,946.31
Transcontinental Oil Co., Tulsa	112,558.74	154	153,518.39
Thompson & Black, Inc., Tulsa	.....	.....	13,823.29
Templeton, M. E., Phoenix, Ariz.*	.....	.....	67,374.56
Taylor, A. H., Shawnee*	.....	.....	3,488.73
Thurmond, T. A., Ardmore	2,381.54	23,801	5,132.18
Thompson Oil & Gas Co., Tulsa	4,536.84	777,680	5,932.45
Thornton Securities Corp., Wellsville, N. Y.*	.....	.....	2,081.57
Traugh, R. P., Wewoka*	.....	.....	3,023.46
Tucker, F. E., Ardmore*	1,913.49	.....	2,415.79
U			
Umburn, W. L., Weleetka*	.....	.....	7,928.93
United Producing Co., Charleston, W. Va.*	.....	.....	3,929.30
Urschel, C. F., Oklahoma City	.....	.....	6,544.86
Urschel, Mrs. Flored S., Oklahoma City	4,470.49	.....	6,544.86
United Eight Oil Trust, Madill	10,331.37	.....	13,858.70
Union Oil & Mining Co., Tulsa	4,486.94	.....	6,115.00
Ungerman, Rachel, Kansas City, Mo.	.....	.....	9,822.59
Umpleby, J. B., Oklahoma City	1,937.30	.....	2,742.87
Unger, A. B. & Marcus, Muskogee	.....	.....	11,010.03
Unger, A. B. & Marcus, Muskogee	.....	.....	19,940.32
V			
Valley Osage Oil Co., Tulsa	20,653.37	.....	25,647.06
Vernon Oil Co., Blackwell	10,810.23	.....	18,938.57
Vierson, S. K., Okmulgee*	4,826.52	.....	6,406.67
Vierson, S. K., Okmulgee*	12,277.32	.....	16,386.32
Vierson Oil & Gas Co., Okmulgee	1,149.23	8,555,855	2,605.20
Vierson Oil & Gas Co., Okmulgee*	9,547.70	.....	12,942.85
Vorhees, Leon G., Oklahoma City*	18,127.82	14,754	23,198.24
Varnum, W. F., Shawnee*	.....	.....	17,681.71
Vance, S. E., Tulsa*	2,497.83	.....	3,901.13
Vassar, Amanda, Tulsa*	.....	.....	3,416.25
Voyes, R. E., Pawhuska	.....	.....	7,170.60
W			
Wentz, L. H., Oil Division, Ponca City	223,195.71	Gas	317,285.60
Westheimer & Daube, Ardmore*	.....	.....	18,454.16
Westheimer & Daube, Ardmore	90,752.00	5,973,420	146,466.52
Warner Caldwell Oil Co., Titusville, Pa.	24,524.36	.....	31,969.53
Wilcox, W. S., Garber*	.....	.....	2,246.76
Wilson, H. F., Oil and Gas, Tulsa	528,280.51	.....	697,185.78
Wilson, H. F., Oil and Gas, Tulsa*	2,110.24	.....	2,841.13
Woolery, K. C., Dallas, Tex.*	21,242.98	.....	28,324.40
Woolery, K. C., Dallas, Tex.*	.....	.....	2,256.92
Wolverine Petr. Corp., St. Louis, Mo.	.....	354,247	18,230.33
Wolverine Petr. Corp., St. Louis, Mo.	9,079.58	.....	253,832.56
Westland Oil Corp., Tulsa	22,713.90	25,138	31,159.16
Winona Oil Co. of Delaware, Tulsa	43,629.68	.....	83,916.62
Washington Royalty Co., Bartlesville*	7,838.11	.....	11,772.61
White Eagle Oil & Ref. Co., Wichita, Kan.	40,095.44	.....	54,319.27
White Eagle Oil & Ref. Co., Wichita, Kan.	.....	.....	5,162.38
Westervelt, Noble Oil & Gas Co., Oklahoma City	.....	123,262	12,326.21
Hales, W. T., Oklahoma City	56,519.69	105,679	72,834.84
Hales, W. T., Oklahoma City*	4,595.37	2,115	6,082.26
Whitney, E. W., Wewoka*	.....	.....	44,148.38
Wiser Oil Co., Bartlesville	85,567.02	.....	105,015.81
Whitehill Oil Corp., Tulsa	6,516.70	.....	8,270.92
Whitehill Oil Corp., Tulsa*	1,527.75	.....	2,512.26
Wright, J. H., Sapulpa	.....	.....	27,524.12
Wright, J. H., Sapulpa	.....	.....	14,420.48
Wright, Archie K., Muskogee*	.....	.....	3,530.99
Wilson, Irwin L., Wewoka	.....	.....	6,037.57
Wilson, Jessie Mae, Shawnee*	.....	.....	30,416.38
White, W. M., Alex	.....	.....	2,681.02
Williams, C. D., Ardmore*	.....	.....	2,447.62
Walker, E. A., Oklahoma City*	.....	.....	30,586.79
Wrightsman Petr. Co., Tulsa*	2,399.89	.....	2,969.47
Wilkins, James H., Shawnee*	.....	.....	2,068.50
Wilson, Fred A., Ponca*	.....	.....	2,357.59
Wood, James, New York City	.....	.....	3,058.13
Woods, W. E., Cox City, Okla.	.....	.....	6,192.09
Wood Oil Co., Tulsa	.....	.....	13,404.67
Wood, Roy, Oklahoma City*	.....	.....	10,705.59
Wasson, J. B., Cleveland*	.....	.....	5,520.09
Windler, Louis, Enid*	.....	.....	2,229.51
Welsh, Ruth, Blackwell*	2,217.88	.....	3,060.67
Welsh, J. L., Blackwell*	.....	.....	3,324.74
Wright, James, Bristow*	.....	.....	7,527.17
Wilson, C. W., Okmulgee	.....	.....	6,216.55
Whitfield, A. J., Sapulpa	.....	.....	12,185.71
Ward Oil & Gas, Tulsa	6,924.40	.....	8,436.85
Westerly Oil Co., Bartlesville	4,111.70	3,812	5,506.92
Williams, H. E., Muskogee	.....	.....	6,343.21
Wittmer Oil & Gas Properties, Pittsburgh, Pa.	5,996.71	9,160	8,471.22
Wilhelmina Worley, Tulsa*	.....	.....	9,615.36
Wigton & Long Co., Okmulgee	.....	.....	12,490.55
Wallace, J. E., Okmulgee	.....	.....	8,927.75
Wolfe Oil Corp., Bristow	.....	.....	9,031.02
Wellsville Oil Co., et al., Wellsville, N. Y.	7,032.17	.....	8,733.90
Wolcott, C. W., guardian, Coweta	.....	.....	4,280.54
Winters, J. M., Alma*	.....	.....	5,716.14
Western Royalty Co., Tulsa*	3,657.33	.....	4,789.97
Wilcox, Flossie E., Melrose Park, Ill.*	.....	.....	30,416.38
Wolford, C. M., Rush Springs*	.....	.....	6,512.99
Wilson, Ollie A. and C. W., Okmulgee*	.....	.....	2,249.28
Wah-Shah-She Oil Co., Bartlesville	3,932.67	.....	5,115.51

Axelson Standard Axelson A·P·I·

Companions of experience

Years of

research, refinement and continued improvement in manufacturing methods were required to develop the Axelson Vanishing Thread Sucker Rod to its present degree of perfection. The A.P.I. Specification Rod, embodying the Vanishing Thread Feature (in modified form) is therefore finished to finest degrees of accuracy by Axelson.

It's the experience that counts!

Axelson Machine Company
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Mid-Continent Distributors—Frick-Reid Supply Co.
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THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

Axelson Sucker Rods

The Label to Look for

"Timken Bearings," it says on the housing of the oil well reduction gear unit manufactured by the Link-Belt Meese & Gottfried Company, of San Francisco. "Timken Bearings" is the distinction proudly emphasized by great makers of every type of oil field equipment. And the most experienced operators accept the presence of Timken Bearings as the surest indication of modern design, minimum operating cost, and utmost durability.

An illustration is the use of Timken Bearings in this reduction gear unit, on the worm shaft and worm wheel shaft. The threat of thrust, shock, radial load and friction is present. Timken Bearings meet it successfully with their Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS*, and Timken-made electric steel.

No fear here of continuous high-pressure operation, or unfavorable conditions. Merely occasional lubrication preserves perfect alignment, saves power, and eliminates "time out" for overhaul.

That is exactly the kind of performance which has put more Timken Bearings into the oil fields than all other anti-friction makes combined.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN
Tapered
ROLLER BEARINGS

Name and address—	Barrels	M. ft. gas	Amount
Wilson, L. W., Okmulgee*			3,047.35
Walsh Oil Co., Tulsa	6,304.33		7,794.49
Wilson, Benton, Greenfield, Mo.			5,033.73
Waltman, J. L., Cushing			6,226.88
Webb, W. A., Allen*			2,713.48
Willmott, John W., San Diego, Calif.*			31,530.16
White, C. O., Okemah*			9,478.63
Walker, Louis H., Indio, Calif.*			2,178.96
Whitworth, L. V. & C. C. Lock, Wewoka*			2,229.47
Winkler & McQueen, Inc., Duncan	5,660.90		23,349.18
Y			
Yount, J. B., Wichita, Kan.*			2,719.23
Yoakum, Etta A., Allen	3,594.39		4,295.68
Young, L. W., Wewoka*			2,931.76
York Oil & Gas Co., Muskogee*			5,671.86
Young, J. Wright, Broken Arrow*	1,769.52		2,304.42
Z			
Zeiser, J. S., Los Angeles	6,938.72		8,398.61
Zollars, Effie M., Lincoln, Ill.*			2,269.07
Zola Oil Co., Tulsa	16,344.16		20,097.78
Zimmerman, L. W., Chicago, Ill.	37,013.93		44,808.23

Mexican Completion Reported Showing For 7,000 Barrels

By George Blardone

TAMPICO, Mexico, Mar. 2.—The outstanding well in Mexican fields so far as the Tampico-Tuxpam embayment is concerned during the past few days is Mexican Eagle Oil Co.'s No. 4 Mecapepec, just north of the old Furbero Field, which that company owns. This well is reported a completion (unofficial) at 3,609 feet. It has been said the formation is a limey shale. Further, it is said that it is showing for 7,000 bbls. This being true, it is certainly the one outstanding wildcat of the past several years that is worth considering. Mexican Eagle controls a large acreage surrounding the well, so line drilling will be practically an impossibility.

Apart from this completion in the pay, there has been nothing but a line of failures to discuss since the last report, if one very small producer that has been hanging fire in the Paciencia de Aguacate sector of the northern fields is considered.

There is drilling at this time in the south fields, or rigging preparing to drill, seven tests; in the north fields say 21 tests. Indefinitely suspended tests will average less than 20 more.

A few widely scattered wildcats will complete the list from the Cazones River, in Vera Cruz, north to the Rio Grande. Mexican Eagle is carrying on in the Isthmus of Tehuantepec, in south Mexico also, but the exact number of tools in operation is not available at this time, but the number cannot be more than five or six.

Meanwhile the entire petroleum situation in the republic is in a state that once more can best be described as being in the doldrums. This is largely an economic situatio nbrought about by a surplus of production in the United States, on which Mexican production, or, rather the desire for production, is based.

So far as the larger companies are concerned, from the viewpoint of governmental laws and regulations, the policy of watchful waiting appears to continue. In short, the scriptures, according to Matthew (7-20), appears to obtain in full force.

"POT OF GOLD" FOR DRILLERS

PALESTINE, Tex., Mar. 3.—The "pot of gold" to be presented the drillers of the first commercial oil well in this county, the Humble's No. 1 Lizzie Smith well, near the town of Neches, now has reached above $500, and the Lions sponsoring expect to make it $1,000. This well is now pumping around 80 bbls. per day.

MOTHER OF C. D. WAGNER PASSES

Mrs. Mary H. Wagner, mother of Charles D. Wagner, vice president and sales manager of the Emsco Derrick & Equipment Co., passed away at her Los Angeles home after a short illness, due to heart trouble.

QUALITY OF CRUDE AND LOCATION OF FIELDS

(Continued from Page 73)

GULF COAST
Daily Average and Monthly Production in January—Texas

	Daily Av. Bbls.	Month Bbls.
Spindletop	43,302	1,342,366
Saratoga	1,059	32,815
Batson	1,329	41,214
Goose Creek	7,355	228,008
Sour Lake	3,587	111,194
Hull	11,947	370,353
Big Creek	2,022	62,682
Columbia	8,610	266,896
Humble	3,565	110,524
Pierce Junction	9,326	289,096
Blue Ridge	4,319	133,873
Markham	200	6,200
Orange	4,537	140,653
Damon Mound	843	26,130
Dayton	246	7,618
South Liberty	1,904	59,028
High Island	26	815
Moore's Field (Orchard)	158	4,897
Boling	2,069	64,151
Nash Dome	1,478	45,824
Barbers Hill	537	16,650
Total	108,419	3,360,987
Louisiana		
Vinton	4,246	131,625
Starks	312	9,678
Edgerly	1,750	54,246
Evangeline	1,099	34,051
Lockport	4,917	152,434
Sweet Lake	482	14,945
Sulphur	103	3,206
Hackberry	1,151	35,684
Total	14,060	435,869
Total Gulf Coast January	122,479	3,796,856
Total Gulf Coast December	140,324	4,350,044
Difference	17,845	553,188

WYOMING
Daily Average and Monthly Production in January

Field—	Daily Av. Bbls.	Month Bbls.
Big Muddy	2,673	82,880
Byron	34	1,059
Dallas-Derby	142	4,402
Dutton Creek		
Elk Basin	943	29,256
Ferris	61	1,886
Grass Creek	2,402	74,454
Greybull	6	176
Hamilton	735	22,785
Hudson	555	17,227
La Barge	965	29,922
Lance Creek	588	18,244
Lost Soldier	2,964	91,913
Osage	377	11,694
Pilot Butte		
Poison Spider	115	3,587
Rock Creek	2,416	74,910
Salt Creek	41,647	1,291,061
Simpson Ridge	34	1,049
Total January	56,657	1,756,505
Total December	55,747	1,728,157
Difference	910	28,348

MONTANA
Daily Average and Monthly Production in January

	Daily Av. Bbls.	Month Bbls.
Cat Creek	1,702	52,809
Kevin Sunburst	9,846	305,230
Lake Basin	173	5,331
Total January	11,721	363,370
Total December	13,014	403,434
Difference	1,293	40,064

COLORADO
Daily Average and Monthly Production in January

	Daily Av. Bbls.	Month Bbls.
Craig	1,183	36,684
Ft. Collins	3,245	100,610
Florence	920	28,527
Iles	1,613	50,017
Tow Creek	478	14,809
Walden	3	113
Rangely (Est.)	100	3,100
Boulder (Est.)	25	775
Total January	7,567	234,635
Total December	6,633	205,623
Difference	934	29,012

NEW MEXICO
Daily Average and Monthly Production in January

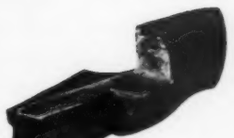
	Daily Av. Bbls.	Month Bbls.
Artesia	1,364	42,306
Hog Back	649	20,108
Rattlesnake	245	7,601
Table Mesa	156	4,850
Total January	2,414	74,865
Total December	2,044	63,364
Difference	370	11,501

OIL FIELD FORGINGS

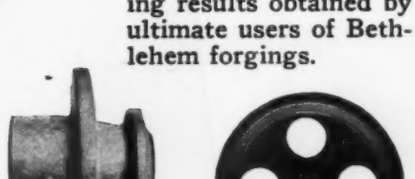
VALVE and machine forgings, flanges, extruded sleeves, cylindrical parts, and other Oil Field Forgings can be produced in any quantity in Bethlehem's forge shops. Hydraulic presses, steam hammers, upsetters, drop forge hammers—designed in accordance with modern practice—daily turn out thousands of forgings of every shape and size.

As an organization with long experience in the making of steel, Bethlehem meets satisfactorily every requirement for uniform high quality forgings. From ore to finished product, Bethlehem controls every step of manufacture.

Careful supervision is justified in the gratifying results obtained by ultimate users of Bethlehem forgings.



For further information about Bethlehem Forgings for the Oil Industry communicate now with the nearest Bethlehem District Office. Inquiries will be given prompt attention.



GOLD MEDAL AWARDS received by Bethlehem at the Sesqui-Centennial Exposition, Philadelphia, in recognition of the high quality of Bethlehem Alloy Steels and Drop Forgings, are further evidence of the excellence of these products.

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Sole Exporter of our Commercial Products

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Not just an Ordinary bit

Men who know bits recognize instantly the big advantage of the *automatically milled* A.P.I. standard threads of the Perfection Fish Tail. Our special equipment has removed the inaccuracies of the human element in thread cutting, and gives the constant accuracy and uniformity of *automatic milling*. Following up the care taken in milling the threads, we use a cast iron Thread Protector that guards the shank until the bit reaches the derrick floor.

New low prices have been made possible by our special milling equipment which has doubled production without increasing overhead. Write for particulars.

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FISH TAIL BIT

Oklahoma Branch: 2 East California Street, Oklahoma City, Oklahoma

OIL CITY
IRON WORKS
SHREVEPORT, LA.

STEEL MILL PRICE TREND UPWARD; PRODUCTION IS SOMEWHAT HIGHER

By B. E. V. Luty

PITTSBURGH, Pa., Mar. 5. — Steel production has increased somewhat in the past week, chiefly it seems by there being heavier specifications against contracts, as strictly new buying is not heavy. The increase is not particularly significant, as the chief gain was in the Youngstown district, which had experienced quite a dip just before. Last week's rate in the Youngstown district is not above the highest rate in January. Steel production in the industry as a whole is probably a trifle above any rate since last May. Official report of February production will probably show a rate slightly above that of January, and this month is predicted to show a further gain. All this, however, would merely be seasonal. There have been similar increases in the first three months of recent years, with an April decrease in four successive years. Production in the first three months of this year will probably be just about equal to that in the first three months of last year, so that there is no general gain, or one that would promise to make this year heavier in tonnage than last year. This may occur, but the evidence has not yet been made.

Price Advance

The tendency of steel mills to advance prices continues. The Carnegie and Illinois steel companies recently advanced their prices on bars, shapes and plates $1 a ton, to 1.90 cents Pittsburgh and 2.00 cents Chicago. Independents promptly followed, prices at the various eastern basing points being marked up to 2.00 and 2.05 cents respectively. The new prices are intended to apply on second quarter contrasts, first quarter contracts having been at 1.80 cents Pittsburgh, which was an advance since fourth quarter contracts were at 1.75 cents and less. Deliveries on those contracts lapped over into the new year and deliveries on first quarter contracts may extend well through April. Thus the test of the advanced prices will not come for some time still, as is the case with other advances, in wire products, strips and sheets.

Invoice prices are running just a shade higher this quarter than last, however, so that something has been accomplished. Steel company earnings should show quite a gain over earnings in the fourth quarter, which were very poor. Shipments seem likely to run 25 to 30 per cent heavier this quarter than last, which with a slight increase in earnings per ton should make a fair first quarter in point of earnings.

The awkward feature in the market situation is that according to precedent actual requirements are likely to run lighter in the second quarter than in the first quarter, and it is then that buyers of the various commodities involved in recent price advances will be called upon to pay materially higher prices on actual shipments.

Pipe Trade

There are no developments of material consequence in the pipe trade. Prices are not an issue as they are in the majority of other finished steel products. While the pipe mills would naturally like to secure higher prices, by way of elimination of the extra discounts that crept into the market last year, they have no particular hope and are perhaps well content that no fresh weakening tendency is visible. For weeks there has been shading in the secondary market in a few sections but this does not amount to much in those sections and it is not spreading to other districts, while mills firmly maintain their prices in sales to jobbers and consumers.

Week by week there is a little improvement in demand for standard or merchant pipe but not enough to make much difference. Demand for oil country goods remains light.

As for several weeks past, pipe mills are operating at about 60 per cent, which has been approximately the rate since the first of the year. There was heavier production of line pipe early in the year, several orders having since been practically completed.

KENTUCKY-TENNESSEE

(Continued from Page 58)

the owners have been trying to clean the hole to get it on the pump. No. 1, when brought in, was better than 200 bbls. and flowed considerable oil which was soon connected to the lines of the Illinois Pipe Line Co.

Near Masonville, near the center of Daviess County, Noe and others are credited with a dry hole on the Bailey farm, and Engle and others have another in No. 1 on the Flora Rice farm, in the vicinity of the Hayden wells.

Field Pickups

In the Ambrose Pool, in Ohio County, Medley Brothers are getting near the sand in a test on the Eliza Jewell farm, northwest of Union Grove Church. Daly & Lohman are shut down at No. 4 on the Ollie Ezell 50 acres with boiler trouble. Young and Lee are working at their No. 3 on the Ollie Ezell 80 acres.

Young and Murray's test on the Lloyd Leachman farm, near Calhoun, in McLean County, at last report was down near 1,300 feet and close to where the Hayden sand should be found. This well is being drilled so that a deep test can be made if necessary. Bryant & Ballantine are reported drilling a test on the Sam Houston property, a mile north of Calhoun, and Rowe & Randall are at work on a test on the Lidia Bell Thompson farm, near the Dimmick well. Edward Murray is working at a test on the Len Mitchell farm, near Wyman School, also in McLean County. Dimmick Brothers are drilling No. 1 on the Len Ford farm, while R. P. Rowe and others are drilling near the Dimmick well on the Thomas farm.

In the Pellville Field of Hancock County, the Wood Oil Co. is drilling a test on the Hillery Higdon farm, and Lang, Smith and others are starting a well on the Moseley farm, same county.

In Daviess County, Robbins & French drilled into a dose of salt water at a test on the T. C. Fields farm, north of the well on the W. V. Lewis farm. It will be drilled for a deeper sand. The wildcat well of the Ohio Oil Co. on the Louis I. Igleheart farm, south of Moseyville and about 1½ miles north of the McLean County line, and just off the Calhoun Road, which has been held up for some time with a slight showing of oil, concluded to go deeper in quest of another pay sand. Miller & Damron are starting a test on the Rex O'Flynn farm, near Utica. Mr. O'Flynn is postmaster at Utica. Miller & Damron are starting a second well on the Jim Brown farm, 1½ miles northwest of Utica, No. 1 being one of the best producers in the county. Same firm is starting a test on the J. F. Leet farm, offsetting the Brown farm well. Westerman & Randolph of Columbus, Ohio, are starting a test on the J. W. Taylor farm, a mile east of the town of Nuckols, in McLean County.

A very important test is being started by H. A. Henry on the Murphy farm, near West Louisville in the western part of Daviess County far in advance of former developments.

CENTRAL WEST FIELDS

(Continued from Page 58)

tion 24, Southwest Township, Crawford County.

Risley and others drilled a duster at a test in the northeast corner of the George Couch farm, in the northeast quarter of Section 1, Friendsville Township, Wabash County, at a depth of 1,827 feet. In Wabash Township, C. E. Borthwell has a

SKINNER Pipe Joint Clamp

for stopping any thread leak at tee, elbow, flange, gate, coupling or master gate

under any pressure or temperature. The Skinner Pipe Joint Clamp stops the leak at its source on gas, oil, steam, water or hot oil. Strong, sure and permanent. Can be put on under pressure. In universal use in the oil and gas industry. Made of malleable iron.

In stock at all supply stores.

Here is—

a guaranteed Saving in 1928 pulling costs

Here, Mr. Producer, is a simply stated offer that involves no obligation on your part, yet probably will mean a substantial increase in your annual profits.

As producers you know Norris Brothers' reputation. That reputation, the result of 22 years of service to the industry, is back of all statements this ad contains.

Years ago we developed a radical departure from the ordinary type of valve check, and called it the Drop & Seat. Since then thousands have been sold. Every order without exception has brought a repeat order.

The improvement of the Drop & Seat over the ball and seat lies principally in smoothness of operation, perfect balance and the protection of the seating surface from the corrosive elements. As a result, savings are reported so remarkable that they would seem exaggerated were they not the actual experiences of users whose names we will forward on request. A superintendent who once requisitioned twenty-four balls and seats a month hasn't had a single replacement since installing Balls & Seats. In a well pulled once a week Drops & Seats are operating *eight months* without change.

In view of these experiences our guarantee is a conservative one. It says simply that unless the NO-CO-RO Drop & Seat gives you twice the service of the best ball and seat you have ever used your money will be refunded.

To delay trying this remarkable improvement is simply to delay a guaranteed substantial reduction in pulling costs.

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Robinson, Illinois
Fort Worth, Texas

dry hole at No. 5 well, 220 feet from the north line and 310 from the east line of the Jesse Cisil farm, in the southeast quarter of Section 2. Joe S. Young and others are starting No. 1 on the H. S. Price farm, Section 14. Wirebach and others are drilling No. 7 on the C. Keyser, Section 6, while G. W. Miller and others are drilling No. 2 W. M. Price, Section 14.

Big Four Oil & Gas Co. is starting a test on the J. C. Martin No. 1 farm, Section 25, Petty Township, Lawrence County.

There is considerable activity in Central and northeastern Ohio, with prospects of the drilling of a number of wildcat ventures in practically virgin territory. There is somewhat of a drilling campaign going on in Addison Township, Gallia County, Ohio. Practically every acre is leased in this township, and recent locations have been made by the Benedum-Trees Oil Co., of Pittsburgh, Pa., the Ohio Fuel Gas Co., Gordon Oil Co. and the Gallia Oil & Gas Co. Three new wells have just been started on the Albert Roush and Albert Frazier leases. This same company has made a location on the Joe Burns farm, in Section 20, same township. This shallow streak line is moving to the southwest, as there has not been a dry hole drilled on this line and the further southwest they go the larger wells they get in Addison Township. The Benedum-Trees Co. has also made a location for a deep test in Perry Township, Gallia County, in Section 16, on the Reese farm. The Ohio Fuel Gas Co. is drilling a deep test on the Robert Goodal farm, in Walnut Township, same county. There is great activity in this part of Ohio at present.

The Wittmer Oil & Gas Co. of Pittsburgh, Pa., is drilling a Clinton sand well in Mason Township, Lawrence County.

The Benedum-Trees Co. has made a location on the J. B. Frost farm, Section 14, Mantau Township, Portage County. This county, as well as Geauga County, is filled with leasers at present. The large oil companies are hoping to pick up some of the big Clinton sand wells they got just southwest in Summit County. However, there are also good prospects in the Niagara lime formation and the Newburg sand besides the Clinton sand. There will be a great deal of activity in this county during the coming year.

Several large leases were acquired in Addison Township, Gallia County, by the Gallia Oil & Gas Co., and several oil and gas wells are to be drilled at once. Gordon Oil & Gas Co. and Ohio Fuel Gas Co. are already showing drilling activities.

The Preston Oil Co.'s test on the Emmitt Ellutt farm, on Lot 463, in the east part of Gallia County, is reported a dry hole at a depth of 1,660 feet.

In the Cleveland Field, in Strongville Township, Cuyahoga County, Hulse & Kudtz's test on the William Loder property, Lot 9, is reported good for 10 bbls. at 3,009 feet. In Olmstead Township, Goff Brothers' second test, 500 feet from the south line and 175 feet from the west line of the A. and A. Dreyer 10 acres, Lot 29, is a fair gas producer.

In Medina County, Granger Township, the Empire Gas & Fuel Co.'s test, 330 feet from the north line and 660 from the east line of the Euodice M. Ganyard 137 acres, Lot 54, is said to have produced 8 bbls the first day.

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Imports of crude and refined oils at the principal United States ports for the week ended February 25 totaled 1,304,000 bbls., a daily average of 186,285 bbls., compared with 1,913,000 bbls., a daily average of 273,286 bbls. for the week ended February 18, and a daily average of 236,286 bbls. for the four weeks ended February 25.

	Week ended February 25
At Atlantic Coast ports:	
Boston	74,000
New York	739,000
Philadelphia	114,000
Others	164,000
Total	1,091,000
Daily average	155,857
At Gulf Coast ports:	
New Orleans and Baton Rouge	146,000
Port Arthur and Sabine district	67,000
Total	213,000
Daily average	30,428
At all United States ports:	
Total	1,304,000
Daily average	186,285
Daily average four weeks	236,286

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended February 25 totaled 150,000 bbls., a daily average of 21,429 bbls., against 543,000 bbls., a daily average of 77,571 bbls. for the week ended February 18 and a daily average of 51,500 bbls. for the four weeks ended February 25.

	Week ended February 25
At Atlantic Coast ports:	
New York	150,000
Total	150,000
Daily average	21,429
Daily average four weeks	51,000
Distribution of total California receipts is as follows:	
Gasoline	150,000
Total	150,000

GAS INVESTIGATION AT BELL SPRINGS, WYO.

Deep drilling in search of oil near Bell Springs, Wyo., 16 miles northwest of Rawlins and 25 miles southeast of the Lost Soldier oil field, led to the discovery of gas in commercial quantity in 1924. Drilling has been continued, and good shows of oil have been found in several wells, but thus far marketable quantities of oil have not been obtained.

The oil and gas possibilities of the area in which the wells have been drilled were investigated by geologists of the Geological Survey. The area examined contains about 80 square miles and was found to include two anticlines—the Separation Flats anticline and the Buck Springs Dome—on which all the wells have been drilled. The results of the investigation are presented in Bulletin 796-D, of the Geological Survey, that describes the two anticlines mentioned and the other structural features and the rock strata. It also gives suggestions with reference to further exploration for oil and gas.

SHIPMENTS FROM MEXICO DURING MONTH OF JANUARY

MEXICO CITY, Mexico, Mar. 2 (By Trens Agency).—Registry of vessels carrying Mexican petroleum and its derivatives during the month of January, according to the Petroleum Section, Bureau of Special Taxes, Department of Finance, was as follows. Figures are in barrels.

	American		British		Other nations		Totals	
Ports—	Number of ships	Bbls.	Number of ships	Bbls.	Number of ships	Bbls.	Number of ships	Bbls.
Tuxpan	3	187,878	1	60,423	..	.....	4	248,301
Tampico	31	1,484,412	11	390,990	14	674,352	56	2,549,754
Puerto Mexico	..	.....	..	.....	5	27,619	5	27,619
Tapachula R. R.	..	.....	..	.....	..	.....	...	371
Total	34	1,672,290	12	451,413	19	701,971	65	2,826,045
Fuel delivered for use on the vessels:								
Tampico	26	51,111	6	33,320	7	30,277	39	114,710
Tuxpan	..	.....	1	11,062	..	.....	1	11,062
Puerto Mexico	..	.....	1	6	1	1,839	2	1,845
Veracruz	2	5,077	..	.....	3	1,266	5	6,344
Total	28	56,188	8	44,388	11	33,382	47	133,958
Total	62	1,728,478	20	495,801	30	735,354	112	2,960,003
Percentage		58.4		16.8		24.8		100.0
Foreign petroleum:								
Tampico					3	3,019	2	3,019
Tapachula R. R.								31
Total					2	3,019	2	3,050

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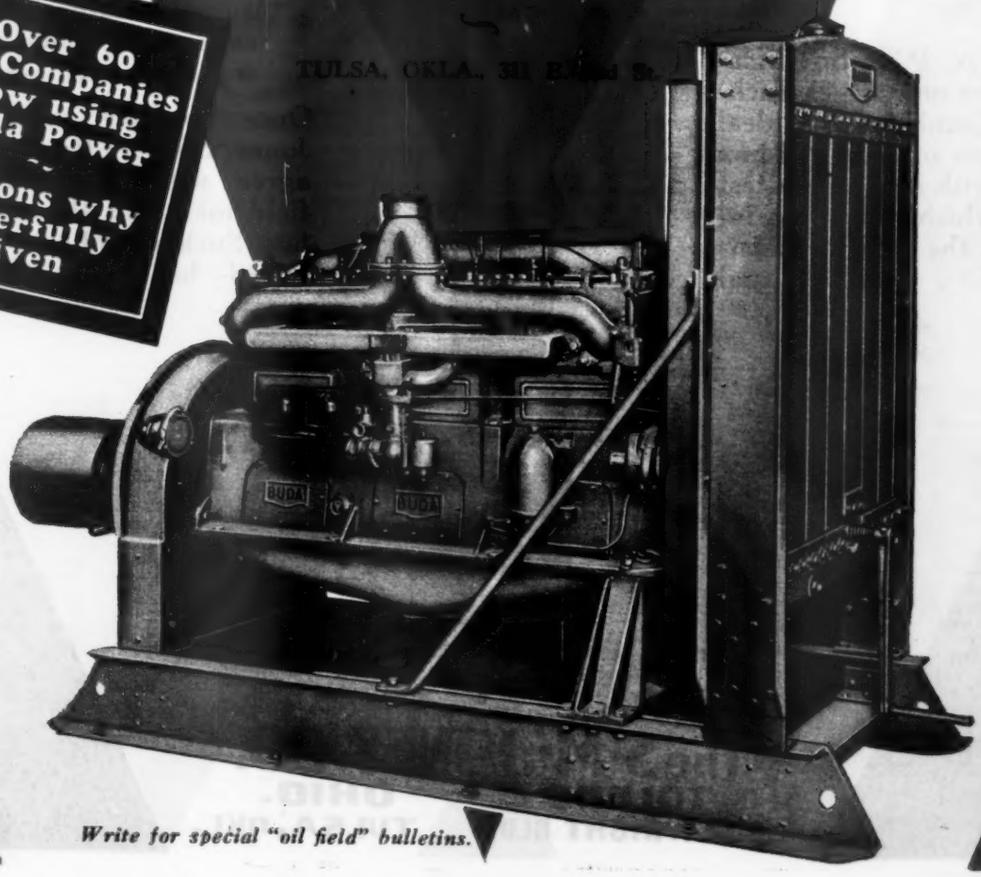

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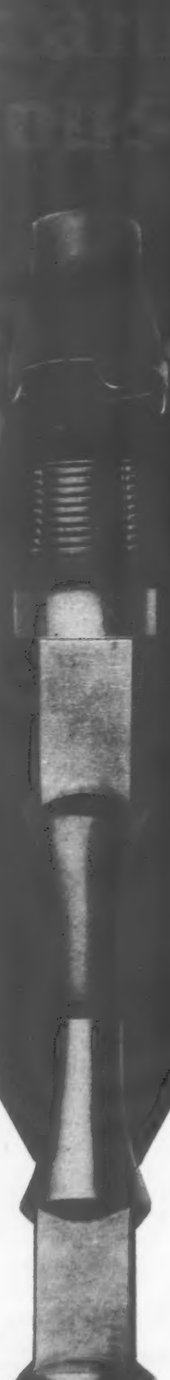

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CALIFORNIA FIELDS

(Continued from Page 56)

in their attempt to open up a new productive horizon below the present Meyer zone they may precipitate another situation similar to that existing in 1923 when pipe line companies practically forced producers to prorate their production because of inadequate pipe line and storage facilities. The deep exploratory work under way at Santa Fe Springs has been of common knowledge for several weeks but it had been hoped that this drilling would be suspended in view of present unsettled conditions. The possible existence of another zone below the Meyer horizon at Santa Fe Springs has been the subject of considerable speculation among geologists of the larger companies for more than a year and the writer has directed attention to this possibility on several occasions commenting on the possibility of correlating structural conditions at Long Beach with those existing at Santa Fe Springs. Producers and refiners alike are undoubtedly hoping that the present attempt to find another zone at Santa Fe Springs is unsuccessful, for if deep flush production is secured it would result in another chaotic condition and mean ruination to several independent refiners. The town lot operators at Santa Fe Springs would undoubtedly respond quickly if a new sand were discovered and deepening operations would be greatly stimulated. The presence of a new horizon below the Meyer zone is, of course, merely conjectural at the present time, although unofficial reports credit some minor showings in one of the wells in question.

Montebello

The Standard finished No. 2 Benedictine, a new well in the Montebello Field, during the early part of the week and this project showed an initial pumping of 190 bbls. of 23.4 gravity oil daily from 3,771 feet. In the Richfield district the Standard recompleted No. 2 Mill, although the output, 55 bbls. per day from 4,291 feet, can hardly be considered as commercially profitable at the present time. Drilling operations at Rosecrans indicate the probable completion of several lower zone producers during the course of the next six months unless drilling operations are curtailed in the meantime. The Barnsdall has No. 9 O'Dea down 5,842 feet at the present time, while the Union has three deep wells under way on the Howard Park property. The Union has temporarily suspended most of this development work and the company will probably allow the wells in question to remain in status quo until conditions improve. The Shell will probably finish No. 14 Orange in the Brea Olinda Field some time within the next two or three weeks and this well should register substantial production as No. 16 Orange, a recent completion nearby, was making 4,620 bbls. per day just previous to being beaned down to 2,000 bbls. The Union should finish No. 71 Stearns in the Brea Olinda Field within the next few weeks and unless drilling operations are suddenly terminated several producers should also be finished in the Richfield district on the Chapman, Stern and Y L.G properties.

Ventura Avenue

Development work in the Ventura Avenue Field indicates the probable completion of a number of new wells during the next 60 days unless drilling operations are temporarily suspended or slowed up in the meantime. The gas conservation and crude oil curtailment program to be put into effect soon does not contemplate the cessation of drilling at Ventura Avenue but limits the production of new wells based upon the production chalked up during the 30-day period immediately following completion. Unless some change is made in this program we may therefore anticipate a normal number of completions in this field during the next several months, especially in view of the fact that drilling obligations on some of the properties are rather stringent. The Associated spudded in No. 3 McGonigle a few days ago and this well, which is an offset to No. 1 Dabney-Lloyd, a recent completion, has just passed the 1,000-foot level. The Bolsa Chica killed No. 3 Hartman, its last completion at Ventura Avenue, and drilling will be resumed in the expectation of stimulating production by adding another 500 feet of hole. The Petroleum Securities and Shell should both list new completions within the next few weeks as each has several potential producers nearing completion.

There were no developments of special importance in the Rincon Field, west of the prolific Ventura Avenue district, during the past week although officials of the city of Ventura are sponsoring a move to clarify the situation at Rincon and promote a comprehensive development program in the hope that this contemplated work will result in a further growth and expansion of that municipality. The city of Santa Barbara, incidentally, is opposed to unrestricted drilling at Rincon for apparently sentimental reasons only as the principal objection to drilling operations at Rincon is based on the flimsy charge that oil derricks would mar the picturesque Rincon drive along the ocean shore line from Ventura to Santa Barbara. The Shell is still working on the construction of a road to the site of its inital well on the Bailard property at Rincon and rig construction should get under way within the next 10 days. Drilling operations in this field at the present time consist more or less of exploratory work as the upper part of the State zone has not resulted in sustained production and operators are drilling ahead in search of a more productive horizon. The Santa Barbara Oil Co. has taken out a permit for a new well to be drilled in the Goleta Field of Santa Barbara County, some 25 miles west of Rincon, and rig material will probably be placed on ground soon. This is of special importance in view of the fact that the Miley Oil Co. recently abandoned all of its various projects on the Tecolote property and will quit claim this lease due to existing lease requirements.

Midway-Sunset

The Union Oil Co. finished the largest completion listed in the Midway-Sunset Field during the past seven-day period when its No. 3 Houchin out in the Maricopa Flats came in flowing 398 bbls. of clean 29.4 gravity oil daily. This new well, located on property offsetting the Standard's Rass lease, was carried down to 5,448 feet, the hole having been finished with a 6¼-inch oil string. The Standard expects to finish No. 4 Rass, located a short distance away from the Union's No. 3 Houchin, some time during the next two weeks, and this project, which failed to hold up when put on a preliminary production test several months ago, looks good for commercial production. The Honolulu Consolidated increased its list of producers a few days ago by bringing in No. 2 in Section 8-32-24 as a 155-bbl. pumper from the 3,115-foot level, the oil being clean and testing 26.8 degrees. The Standard also listed a new completion in this area during the current week, No. 99 in Section 33-31-24 being brought in as a 136-bbl. pumper from 4,330 feet, the hole having been finished with a 6¼-inch oil string. The Franco-Western Oil Co. has started rig construction for No. 9, a new well out on the McKittrick front in Section 8-30-22, and this project will probably be spudded in within the next two or three weeks.

Kern River

Completions out along the West Front of the Kern River Field were not as numerous this week as heretofore due probably to a little slowing up of work in the face of the contemplated drastic curtailment of production in this field. The Kern Front, which produces a heavy nonrefinable crude running about 16.5 degrees in gravity, has been very active during the past two years and although there has been a temporary lessening in drilling operations in the past week or 10 days lease requirements will undoubtedly result in further work during the next several months, notwithstanding the fact that a number of wells will be shut in until conditions improve. The California Petroleum finished No. 5 Lehman a few days ago and this new well, which was plugged back from 1,750 feet to 1,732 feet, is pumping 95 bbls. of 15.4 gravity oil daily. The Chanslor-Canfield Midway Oil Co. completed No. 15 in Section 23-28-27, as a 110-bbl. pumper from 2,162 feet and preparations are being made to bring in No. 16, one location away. The California Star got its first production in this field by completing No. 1 in Section 22-28-27, and this well registered an initial pumping of 95 bbls. daily from 2,383 feet.

The Shell recompleted No. 1 Jewett in the Round Mountain Field, approximately 15 miles northeast of Bakersfield, and the commercial production secured, 340 bbls. daily from 1,640 feet, has automatically extended the productive limits of this field. No 2 Jewett was spudded in immediately upon completion of No. 1 and the former was reported down 310 feet a day or two ago. The General Petroleum has staked a location for its first project in the Round Mountain Field and rig material will be on the ground soon for the initial project, which will be located in Section 30-28-29. The Honolulu Consolidated has several wells nearing completion on the properties which were acquired from the Elbe Oil Co. several months ago, several of which look fairly promising. The Signal Hill Gasoline Co. found the top of the Vedder zone in the Granite Canyon section of the Mount Poso Field at 1,520 feet and the water string will be landed and cemented at approximately this point. The Mount Poso Field is located about 15 miles northwest of Bakersfield in Kern County and a similar distance west of the Round Mountain Field.

Northern California Wildcats

The Shell's No. 1 Mossi, a wildcat in the Petaluma district in Sonoma County, north of San Francisco, furnished the surprise of the week from a wildcat standpoint when it unexpectedly came in as a 20,000-foot gasser a few days ago. The well had been standing cemented at 1,440 feet and blew in through the drill stem as soon as the plug had been drilled out. A 20,000-foot gasser is rather insignificant in comparison with some of the large blowouts of recent date but this case is nevertheless of special importance due to its location and possible effect on future production. Gas and oil seepages are quite common in Sonoma and Humboldt Counties in the northern part of the State but the Shell is the only major concern to consider this section of California as potentially worthy of aggressive prospecting work, although the Union Oil Co. owns something in excess of 10,000 acres in fee. The importance of the Shell's discovery has not yet been determined but it is very encouraging to say the least.

The Shell is drilling under a contract with H. N. Witt and associates who own in fee or control leases on about 8,000 acres covering all of the probable productive acreage on three separate structures in the Petaluma Valley. Witt and associates spent around $150,000 in exploratory work before the Shell entered the picture. The first well drilled by Witt was lost during the early part of 1925 because of a disastrous blowout although this project furnished boiler fuel for the second well. No. 2 also suffered several blowouts and it required the liberal use of barite mud to keep it under control previous to completion. This well was eventually finished as a 50-bbl. flowing well from a 27-foot oil sand at 994 feet and although it failed to hold up to its initial production it has been pumping around 15 bbls. per day for a year or more. The oil from this well contains 7½ per cent gasoline, 20 per cent kerosene, 15 per cent gas oil, 35 per cent lubricating stock and the balance asphaltic residue. Of the lub stock the heavy ends constituting about 8 per cent contain considerable wax but the balance is an excellent cold test lub stock.

The Pacific Eastern Production Co. expects to be in a position to test out its two wildcats in the Union Avenue area some time within the next three weeks as No. 2 is scheduled to encounter the upper zone within the next few days while No. 1 will have been plugged back in the meantime. Development work in the Kettleman Hills area of Kings County is still in a rather unsatisfactory condition although the Bolsa Chica Oil Co. has resumed work in its wildcat after a suspension of several months' duration and an attempt will be made to secure production in the shallow zone. Neither of the deep tests of the General Petroleum or Milham Exploration Co. showed any substantial improvement during the week. The Southern California Gas Co. is scheduled to make a production test on the well which it is drilling at Buttonwillow for gas production some time within the next 10 days. The Buttonwillow area looks like California's first commercial gas field and it is understood that tentative arrangements have been made for the laying of a natural gas line from this district to San Francisco before the close of 1928, provided, of course, that additional development proves the existence of gas in commercial quantities at this point. The Richfield Oil Co. has taken over the property of the Semitropic Oil Co. in the Semitropic region of Kern County, northwest of the Fruitvale and Union Avenue districts, and drilling has been resumed.

Southern California Wildcats

The Smith & Carpenter gasser in the Potrero Field, located between the Rosecrans and Inglewood Fields in the Los Angeles Basin, sanded up during the early part of the week after several days of continuous delivery averaging a little less than 1,000,000 feet per day, and it will be allowed to remain inactive pending construction of the absorption plant which will treat the gas before delivery to the Southern California Gas Co. Smith & Carpenter's Potrero well, it will be remembered, failed to secure commercial production of crude oil although it is only a few hundred feet southeast of the Associated's discovery, No. 1 Cypress. It came in as a gasser, however, and will probably net Smith & Carpenter a very nice return on their investment as this project was taken over after it had been abandoned as a duster by the Julian Petroleum a year or so ago and consequently required only a limited expenditure. The Shell is making new hole in J. E. O'Donnell's wildcat at Hawthorne and the next several hundred feet will be cored solid. The San Fernando Valley is scheduled to have a second test soon, the Shell having decided to drill another hole on the Mission property, although No. 1 is being abandoned as a duster at 4,953 feet. The Shell has about 1,000 acres under lease in this section and the substantial acreage held, together with the minor showings logged during the course of work justify the additional expenditure contemplated.

EASTERN FIELDS

(Continued from Page 56)

pleted the previous week, is holding up at 50 bbls. a day.

In Monongahela Township, Greene County, J. L. Garard & Co. completed their test on the Barnett Donzam farm at 3,000 feet and it is dry and abandoned. In Wayne Township, the Philadelphia Natural Gas Co. completed its No. 1 Henry Stimmerman farm at 3,200 feet, and it is also dry and abandoned. In Gibsonia, Allegheny County, the Gibsonia Oil Co. completed its No. 2 N. D. Gibson farm and has a gasser.

On the Kanawha River, Sheridan district, Calhoun County, West Virginia, M. F. Crowley has completed his test on the J. A. G. Buck farm. It found no oil in the sand and only a little gas. The location is 250 feet northeast of the Hope Construction & Refining Co.'s test on the J. P. Knight farm.

In Hackers Creek district, Lewis County, Goodwin Brothers have a light gasser in the fifth sand at a test on the H. C. Lowther farm. In Grant district, Harrison County, the West Virginia Central Gas Co. has completed a test on the W. B. Maxwell farm. It is a gasser in the Benson sand. In Union district, same county, the Reserve Gas Co.'s test on the T. L. Evens farm is a gasser in the Speechley sand. In Coal district, the Reserve Gas Co. is fishing at 2,410 feet

on the Hugh Thompson farm. The Camden Gas Co. is delayed for the same reason at a test on its own property at a depth of 2,250 feet.

Gassers in Marion County

In Paw Paw district, Marion County, the Owens Bottle & Machine Co. has a gasser in the Gantz sand at a test on the New Central Coal Co.'s property. In Fairmont district, the Mack-Bell Oil & Gas Co. has a gasser in the Big Injun sand at a test on the O. C. Prickett farm.

In Clay district, Monongalia County, the South Penn Oil Co.'s No. 6 on the Simeon Tennant farm is a duster in the Bayard sand. In the same district, the Carnegie Natural Gas Co. is due in the Bayard sand on the Mahlon Tennant farm. In Grant district, Wetzel County, the same company has shut down at a test on the John Wycoff farm. In Union district, L. M. Knowlton has a 4-bbl. pumper in the Keener sand at a test on the H. B. Williamson farm.

In Geary district, Roane County, where the South Penn Oil Co. drilled in another good producer in the Clay County Pool, which extends over the county line, and it is No. 67 on the O. D. Stockley farm completed in the Injun sand and is good for a 45-bbl. producer.

In Lincoln County, on the waters of Horse Creek, the United Fuel Gas Co. completed its No. 3 on the Horse Creek Coal & Land Co. to the Berea, and it is showing for 700,000 feet of gas. In Grant district, Pleasants County, Dinsmore & Co. completed their No. 38 on the E. N. Cook farm to the Cow Run sand and it is dry.

The Manufacturers Light & Heat Co. completed its No. 2 on the J. C. and Emma Reid farm, Liberty district, Marshall County, and has a fair gasser. In Ten Mile district, Harrison County, D. C. Loughery completed his test on the John Dennison farm and have a fair gasser.

Drilling Deeper

In Mannington district, Marion County, the Buffalo Oil Co. is drilling No. 1 Frank Renner from the Big Injun sand to deeper sand for test. The Carnegie Natural Gas Co. is still drilling at 2,435 feet its No. 1,394, Grant district, Wetzel County, having drilled through the Big Injun at 1,023 feet, and a showing for a fair gasser at 2,408-20 feet.

The Goodwin Brothers completed their No. 1 well on the H. C. Lowther farm in the Fifth sand at 2,084 feet and have a light gas well in Hacker Creek district, Lewis County. In the same district and County the Carnegie Natural Gas Co. is drilling deeper its No. 1 well on the W. H. Cortright farm, which has been producing gas from the Fifth sand. They are now down to 2,050 feet. In the same district and county, the Standard Gas Co. is drilling deeper its No. 1 well on the Swisher heirs farm and is now down to 3,300 feet. This well has been producing gas from the Fifth sand.

The Philadelphia Natural Gas Co. completed its No. 7,546 Elk Valley Lumber Co., Birch district, Braxton County, at 2,261 feet, and it is a fair gasser. In DeKalb district, Gilmer County, James A. Tierney completed his No. 3 on the James A. Tierney farm at 2,045 feet and it is a gasser. W. H. Bickel completed his No. 1 on the John J. Sturm farm, Center district, Calhoun County, at 1,368 feet and it is a fair gasser. In the same district and county, G. L. Cabot completed his test on the A. J. Holbert farm to the gas sand at 1,938 feet, and it is a very light gas well. In Duvall district, Lincoln County, the United Fuel Gas Co. completed William Gilleneaters' No. 1,855 at 2,308 feet and have a gasser.

On Sugar Camp Run of Reedy Creek, Reedy district, Roane County, the Heck Oil Co. has now completed in the Berea grit No. 10 on the J. W. Conley farm, good for 25 or 30 bbls. a day. In Geary district, the United Fuel Gas Co.'s test on the W. A. Geary farm is a gasser in the Big Injun sand.

Boone County

In Scott district, Boone County, the United Fuel Gas Co. has a light gasser at a test on the Julian Hill & Co. farm. In the same district, the Hope Natural Gas Co. has a very light gasser at a test on the J. H. Hill farm. In Sherman district, Godfrey L. Cabot's second test on the Sales & Co. farm is a light gasser.

Starting Tests

In Murphy district, Ritchie County, L. W. Cunningham and others have a rig up on the G. W. Haines farm. In the same district, Hardman & Co. are rigging up on the J. Wolfe farm. In Sardis district, Harrison Hugh Burke & Co. have made a location on the Jesse Hannah heirs farm. In Collins Settlement district, Lewis County, H. P. McGinnia and others have a rig up on the L. D. Anderson farm.

Southwest Pennsylvania

The old Southwest Pennsylvania fields had very few completions; the best was the Peoples Natural Gas Co.'s test on the Kinsey Fox farm, in Whitley Township, Greene County. It is a gasser good for 2,000 feet in the Gordon sand.

In this field the Consumers Fuel Co.'s No. 3 James Rutan is still holding up at 100 bbls. a day from the old Nineveh Pool extension. There were a greater number of wells completed this week than usual, mostly gassers. Among the late completions in Greene Township, Greene County, the Carnegie Natural Gas Co. completed its No. 2 H. M. Fordyce farm at 3,068 feet and has a fair gas well. In the same county, Perry district, Fay Headlee, trustee, drilled No. 3 C. H. Lemley farm down from the Big Injun sand to the Bayard sand and has a gasser.

The Carnegie Natural Gas Co. drilled its No. 1 on the Della F. Wilson farm, 3,260 feet into the Bayard sand and has a dry hole in Perry Township, Greene County.

In the same township and county, Charles Fox Gas Co. completed its No. 3 well on the Charles Lemley farm and has a well good for 1 bbl. per day from the Bayard sand at 3,120 feet.

The Peoples Natural Gas Co. completed its No. 1 on the Kinsey farm at 2,180 feet in the Injun sand and has a gas well good for 2,000,000 feet per day in Whitley Township, Greene County.

SOUTHWEST TEXAS

(Continued from Page 46)

235 feet with tools lost in the hole and derrick will be skidded over for No. 2 Adams, 70 feet from No. 1.

Jim Hogg County

Magnolia Petroleum Co.'s No. 35 Merchants State Bank, Survey 415, Randado Field, at 1,241 feet, is pumping 20 bbls.

Webb County

Cole Petroleum Co.'s No. 52 Benavides, Survey 412, Block 5, at 2,333 feet total depth, is making 3,000,000 feet of gas, with 500 pounds pressure open flow and 700 pounds closed and flowing oil estimated at 100 bbls.

J. H. Winch's No. 1 A. E. Gates, Survey 70, Leaseholders Field, has been abandoned dry at 2,530 feet, total depth.

W. O. Wheatley's No. 3 Reiser, Reiser Field, Survey 1,618, Block 12, at 334-73 feet showed oil, bailing about 10 gallons and has been abandoned at that depth.

NEW LOCATIONS

California interests are moving in equipment for a test on the Hamilton lease, 40 miles south of the old Pandale well and 5 miles from the Southern Pacific Railroad near Lozier Canyon.

Queen City Oil & Gas Co.'s No. 2 Adams, 70 feet from the No. 1 in Hidalgo County, is skidding derrick and will spud in on or before March 1.

Schimmel Petroleum Corp.'s No. 4 Ginter, Survey 39, Yoakum Survey, Somerset Field in Bexar County, is location 600 feet west of No. 2.

H. R. Smith's No. 1 Callihan, D. Cooper Survey, in Caldwell County, is location in center of survey.

J. E. Latson's No. 1 Gomillion, in the J. Burleson Survey, in Caldwell County, is location in the northwest corner.

Louis P. Schawe is moving in rig and has derrick up for a test in Caldwell County.

Humble Oil & Refining Co.'s No. 2 City National Bank, Survey 654, is location, a few feet from No. 1, and 2 miles southeast of Odem.

Cushing Oil & Gas Co.'s No. 1 M. Perez, Jim Wells County, La Tinaja De la Lara grant, 600 feet to north and east lines, is rigging up, with derrick already erected.

J. A. Harper and others' No. 2 Nichols, near No. 1 recently abandoned at 1,800 feet, is drilling at 900 feet to test sand at 1,142 feet.

R. D. Kelly is moving in for test in San Patricio County, exact location to be announced later.

CANADIAN FIELDS

(Continued from Page 53)

well was credited with 50 bbls. a day or better, being the first real commercial producer in the Turner Valley Field. A couple of years ago the Southern Alberta properties were taken over by the Royalite Oil Co., and the Dalhousie Oil Co. was organized, the Royalite holding 51 per cent of the stock. It was then decided to deepen the old Southern Alberta No. 1 well as Dalhousie No. 1. Before a new hole could be made the drillers had to pound their way through a string of tools at the bottom of the old hole. The test is interesting in that the location is on the western fold of the Turner Valley anticline, Royalite No. 4 naphtha gusher being on the eastern fold, and Vulcan Oils No. 1 in the intervening syncline.

May Make 100 Bbls.

Dalhouise Oil Co. No. 5, LSD 16, Section 30-19-2w5, is at 4,900 feet and flowing oil through a 2-inch tubing inside the 6-inch casing, the gas pressure geing sufficient to force the oil up through the small pipe, where with the larger hole the well flowed by heads. It previously made around 65 bbls. a day of light crude, but is expected to make around 100 bbls. a day with the tubing. Dalhousie No. 6, LSD 10, Section 13-20-3w5, is drilling at 4,711 feet, and practically on top of the lime. The casing will be cemented in the top of the lime and the test drilled into production.

Royalite Oil Co. No. 6, LSD 16, Section 31-10-2w5, is at 4,208 feet and drilling in the black formation immediately overlaying the top of the lime. Royalite No. 7, LSD 3, Section 13-20-3w5, which got production at 4,208 feet and has been making up to 100 bbls. a day of crude nahptha, is reported to have increased its wet gas production to more than 8,000,000 feet a day, with a considerable though undetermined increase in crude naphtha recovery. No. 7 quit drilling in the top of the sand so that the gas production might be turned into the Calgary line for the winter, the plan being to deepen the well in the spring. Apparently the well is drilling itself into larger production.

Royalite No. 8, LSD 9, Section 12-20-3w5, is drilling at 3,298 feet. Royalite No. 9, LS D6, Section 13-20-3w5, is at 3,747 feet, reaming and rigging up to run 12½-inch casing.

Royalite No. 10, NE Section 12-20-3w5, which got light oil production in the Blairmore-Dakota horizon, at 2,332 feet, has been bailing 38 to 40 bbls. a day, and will be put on the pump at once. Royalite No. 11, LSD 10, Section 12-20-3w5, is reported drilling at 222 feet. Royalite No. 13, LSD 6, Section 13-20-3w5, offsetting McLeod No. 3 Blairmore producer, is ready to spud in with a standard outfit. Royalite No. 12 rotary test is also ready to spud in.

Foothills Oil & Gas Co. No. 1, SW Section 26-20-3w5, is at 3,498 feet and waiting for a cutter. Foothills No. 2, LSD 8, Section 1-20-3w5, is at 1,905 feet and running 12½-inch casing. Home Oil Co. No. 2, LSD 14, Section 20-19-2w5, is at 3,620 feet and drilling. Home Oil Co. No. 3, same LSD, has spudded in, and is drilling at 105 feet.

Oil Coming With Gas

Spooner Oils No. 1, LSD 12, Section 13-20-3w5, is at 4,930 feet and drilling 274 feet in the deep lime, with a gas flow around 4,000,000 feet a day. Some oil is coming with the gas, the oil shooting up int othe derrick every time the tools are pulled out. Vulcan Oils No. 2, LSD 11, Section 13-20-3w5, is drilling at 4,790 feet with 1,500,000 feet a day of wet gas.

New McDougall-Segur Oil Co. No. 3, LSD 14, Section 12-20-3w5, is drilling below 1,000 feet. It will be finished in the light oil horizon of the Blairmore-Dakota, after which No. 1 producer, same LSD, will probably be drilled to the deep lime. No. 1 is making from 30 to 35 bbls. a day and No. 2 around 40 bbls. a day of 55 gravity crude, the former standing at 2,595 feet and No. 2 at 2,646 feet. No. 1, which came into production about a year ago, was started originally with the deep lime as an objective; the light crude production has fallen off somewhat after a year of steady production, but the well is in good shape to go deeper. No. 2 may also be carried to the Madison. The New McDougall Segur wells are close to the McLeod, Illinois-Alberta and Royalties No. 7 deep lime producers, so that they are practically certain to get production in the dolomite.

Illinois-Alberta Oil & Refining Co. No. 1, LSD 14, Section 12-20-3w5, reported for the week ending February 18 a crude naphtha production of 699.9 bbls., averaging 99.9 bbls. a day. Illinois-Alberta No. 2, same LSD, is drilling at 1,600 feet.

Stockmen Oils No. 1, LSD 1-2, Section 27-20-3w5, is working to get the gas flow under control before moving to No. 2. LSD 7, same section, to spud in.

British Dominion Oil Development Corp., LSD 4, Section 5-20-2w5, is drilling at 6,460 feet, with casing at 6,416 feet. This is the deepest test in Canada, and has apparently not yet reached the top of the Madison.

In Fernie Shales

Calmont Oils, LSD 2, Section 1-20-3w5, is drilling in the lower Fernie shales at 5,162 feet. The test entered the Fernie shale formation at 4,959 feet. Great West Oils No. 1, SE Section 7-20-2w5, is getting ready to resume at 5,370 feet. The company has three producing wells in the Kevin-Sunburst Field, but is planning to concentrate on the Turner Valley. No. 1 has been held up for some time by casing trouble, due to some tools becoming cemented inside the casing.

Okalta Oils No. 1, LSD 1, Section 1-20-3w5, has resumed drilling in the Fernie shales at 4,620 feet, after straightening a short stretch of crooked hole. Seneca Oils, LSD 1, Section 34-20-3w5, has resumed drilling at 3,443 feet, after running casing. Sentinel Oils, Section 8-20-2w5, is reported down nearly 4,000 feet and waiting for 10-inch casing. Regent Oil Co., LSD 16, Section 1-20-3w5, is being completed by the Union Drilling & Development Co., with George Muir in charge of the contract. The test is resuming drilling at 2,475 feet, in the Blairmore-Dakota horizon, where some oil showings were reported just before the shut down a few months ago.

New Valley Oil Co., LSD 4, Section 6-21-2w5, which has been shut down owing to difficulty in securing fuel, has contracted for a coal supply from the Fee mine near Priddis, and is preparing to resume drilling at 2,085 feet. At this depth the hole has 10-inch casing practically to the bottom. Some small shows of oil and gas were met. The location is on a structure north and west of the main Turner Valley fold, the New Valley being the only test drilling on this subsidiary fold. Shareholders of the company held their annual meeting at Calgary recently, when the following were elected directors for the coming year: President, W. E. McLeod; vice president and managing director, H. P. McLeod; secretary-treasurer, F. F. Jessee; directors, P. J. Tims, Mrs. A. Kelly. The company holds 1,800 acres on the New Valley structure, and is taking over 1,200 acres in New Valley, where a second test will likely be started this season.

United Oils No. 1, LSD 2, Section 24-20-3w5, is digging cellar and unloading derrick timbers for a new test in the Turner Valley Field. Mayland Oil Co., LSD 10, Section 17-192w5, is rigged up ready to spud in. The location is close in to the Home group of wells. The Union Drilling & Development Co. has the contract for the test, which will be supervised by George Muir.

Options Gas Production

It is announced that the Calgary Power Co. has optioned the entire gas production of Stockmen Oils, Ltd., and the McLeod Oil Co. and that the company is prepared to sign similar options with other companies in the Turner Valley Field. Stockmen Oils, Ltd., has an open flow of approximately 3,000,000 feet from

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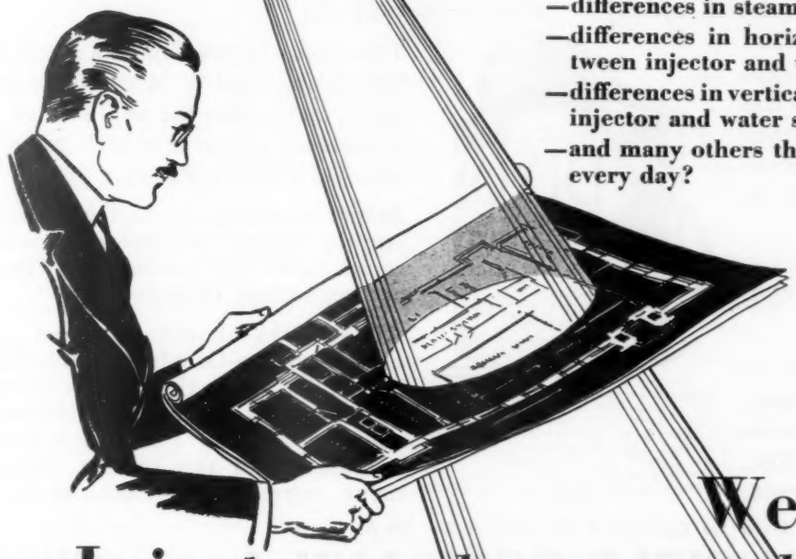

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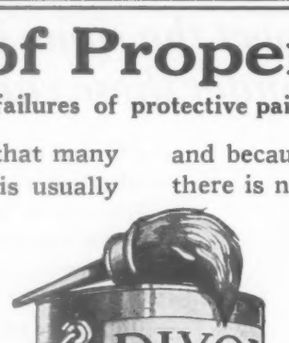

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its No. 1 well in the north end of the field, and McLeod Oil Co. has an estimated open flow of 13,000,000 feet, being 2,500,000 feet a day from No. 2 and 10,500,000 feet a day from No. 1 well. No details have been made public as to plans of the Calgary Power Co. for utilizing the production, but it is understood the company intends to use it for generating electric power. The Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary has what is generally considered an exclusive franchise for distribution of natural gas in Calgary; and it seems improbable that the Calgary Power Co. will attempt to enter this field. It is understood that the options call for a minimum rate of 5 cents per 1,000 feet, and are to be taken up not later than September 30, 1928; some minor details have still to be arranged. Utilization of the gas will involve construction by the Calgary Power Co. of a 35-mile pipe line from the field to Calgary. There is a possibility that the company will also supply gas to smaller communities in the south and east of Calgary not at present served by the Canadian Western Natural Gas Co. lines.

In the De Winton district, Anglesey-Lakeview No. 1, LSD 1, Section 22-21-1w5, is drilling at 2,269 feet.

In the Morley Reserve area, Wabash Oils is at 850 feet and drilling. In the Moose Mountain Field, Signal Hill Oil Co. No. 2, LSD 9, Section 34-23-5w5, is drilling around 1,844 feet.

In the Highwood district, Imperial Oil, Ltd., Highwood No. 1, LSD 3, Section 36-18-3w5, is still straightening a crooked hole at 3,624 feet.

Leases in Alberta

Official figures compiled by the Department of the Interior at Ottawa show that last year a total of 9,708 leases covering oil and gas rights on 1,199,267 acres were held in Alberta. Oil production from wells on these lands for the fiscal year ending March 31, 1927, approximated 250,000 bbls. worth over $1,000,000. Considerable new acreage has been leased in Alberta since this report was compiled.

At a recent meeting of shareholders of Fabayan Petroleums, Ltd., operating in the Wainwright Field, increase of the capitalization to $1,000,000 was authorized, with a view to financing completion of the No. 1 well in LSD 8, Section 24-45-8w5, now shut down at 1,100 feet. Casing is being moved to the well and work will resume early in the spring. The directors were re-elected with R. E. Williams as president, and J. W. Sandreson of Saskatoon, representing Saskatchewan shareholders, was added to the directorate. The company has secured acreage in Saskatchewan near Saskatoon, where No. 2 test will be spudded in this spring. The test near Saskatoon will be drilled primarily to develop a natural gas supply, to be marketed in northern Saskatchewan.

It is reported that if the Hudson's Bay-Marland Oil Co. test in the Viking Field secures production, that company and the Northwestern Utilities, Ltd., of Edmonton will organize a subsidiary company to drill out the field.

On the Ribstone-Blackfoot structure, eastern Alberta, Ribstone Oils, LSD 1, Section 1-46-1w4, which was cemented at 1,925 feet, will start to drill out the cement as soon as the weather moderates. The test at this depth is in approximately the same horizon where Imperial-Ribstone No. 1, Section 5-45-1w4, got a show of oil.

Skiff Field

In the Skiff Field, Devenish Petroleum No. 1, LSD 5, Section 27-5-14w4, is still pumping. No further information has been made public as to the production. It is reported that a Calgary syndicate has contracted for the drilling of a test in Section 32-6-14w4, considerably north and a little west of the Devenish No. 1. Considerable acreage was leased by independent operators last year following the Devenish No. 1 strike, and it is expected several tests will be drilled this summer in addition to the Imperial-Devenish development program, which calls for 10 wells.

It is unofficially reported that following recent developments at the Sunburst Oil & Refining Co. Flat Coulee well in the Sweet Grass Hills district, 2 miles south of the boundary, geologists for Imperial Oil, Ltd., have been at work in the adjacent sections of southern Alberta. South of the boundary A. J. McLay is reported moving in equipment to start three tests for the Patterson-Brown interests of Anaconda and Spokane. It is understood Mr. McLay has a contract for 10 wells in all. The program includes the deepening of the old Montana-Canadian gasser, drilled in 1915 by the Anaconda Copper Mining Co.; this test was abandoned at 1,800 feet when it reached the base of the Colorado, but it is now planned to continue drilling to the Madison-Ellis contact, where the Flat Coulee well got its chief production. The Montana-Canadian well still has the pipe in the hole and has some gas production with around 400 pounds rock pressure. The Patterson-Brown leases, aggregating 15,000 acres, are mostly in township 37-4e, due south of the Rogers-Imperial gasser on the Canadian side. The Rogers-Imperial got around 25,000,000 feet in the Sunburst sand and 30,000,000 feet at the Madison-Ellis contact, and the Montana-Canadian when deepened is expected to tap the same production.

The Sunburst Oil & Refining Co. Flat Coulee well, got additional production when drilled to the Madison-Ellis contact, and will be finished at that depth.

Mill City Oils, Ltd., of Calgary, drilling west of Kevin in SW Section 29-35-3w, got only a small production, estimated 8 to 10 bbls. a day, at 1,800 feet, and is being abandoned. It is reported that the company will transfer its operations to the Turner Valley Field where it has 560 acres under lease.

SOUTHWEST WILDCATS

(Continued from Page 46)

located 300 feet west, got better production at 2,778 feet. No. 4 was later deepened to 2,795 feet. No. 7 Kohler, located south of them about 300 feet, got salt water with a little oil in sand at 2,793-2,807 feet, and it looks like the field would still consist of but two producers for a time longer. Production from the two wells last month averaged 52 bbls. per day from the two on the pump.

Elsewhere in Southwest Texas wildcat activity held but little of interest the past week. Witherspoon Oil Co. got a small gas well at 860 feet in Zavala County in unproven territory and 1½ miles west of where J. G. Pundt a few weeks before got a small gas well at a little greater depth. Pundt is making a new location between the two and will seek to develop a gas field and hopes there is a chance also of running into oil. Humble company will drill another well in Dimmit a few feet away from its No. 1 City National Bank that tested a few million feet of gas at 1,455-85 feet.

Sutton County

T. C. Hadley has the Pennsylvanian formation from 760 feet down to 1,050 feet. The diamond core samples were examined for that depth by the Texas University department of economic geology and while Doctor Sellards at present would not attempt more than a general reference of the material examined to the Pennsylvanian, the presence of Fusulina leads him to believe that it is upper Pennsylvanian. While the rock resembles the Bend, Fusulina are very rare in the Bend, hence he believes it the upper Pennsylvanian. The well is drilling at 1,233 feet now but the examinations thus far have been completed only to 1,050 feet. This well is on the Ross tract in Section 6, Block 14, of the T.W.N.G. Survey, and in the area described as the eastern rim of the Permian Basin. The well was started and has been carried as the National Potash Co.'s No. 1 Ross. Hadley has made location for another well 3 miles southwest of it in Section 53 of the same block and survey and Donahue and others are moving in machinery in Section 29, Block B, of the H.E.&W.T. Survey, 7 miles northwest of Hadley, and a drilling contract is reported, but not confirmed, to have been let in the southeastern part of the county 12 miles southeast of Hadley in Section 71 of Block A.

Duval County

National Oil Co.'s No. 1 Ball, Survey 16, located 450 feet to north line and 150 feet to east line, has resumed drilling at 1,550 feet. Houston Oil Co.'s No. 1 Woods-Welder, Survey 233, located 1,750 feet to west line and 100 feet to north line, is drilling at 1,500 feet.

Hidalgo County

D. L. Smith Oil Co.'s No. 5 Fernandez, Porcion 46, Block 34, is drilling at 3,240 feet.

Jim Hogg County

M. I. Shaw and others' No. 1 Jones, Survey 381, Block 12, located 171 feet to south line and 486 feet to west line, at 1,850 feet is drilling in shale after testing dry in sand at 1,654 feet.

Starr County

The Texas Company's No. 1 M. Guerra, Porcion 68, Block 91, located 1,000 feet to east line and 150 feet to south line, has been spudded in; No. A-1 V. Guerra, Porcion 68, Block 92, is location 150 feet to south and east lines. Kusch Exploration Co.'s No. 1 Frank Doyno and others, Porcion 75, Block 13, is drilling at 650 feet in rock. Clark & Woodruff's No. 1 Kelsey, Porcions 76, 75, 77, is at 568 feet fishing for bailer. J. E. Harston's No. 1 H. Guerra, Survey 43, located 660 feet to south line and 1,320 feet to east line, is shut down at 1,120 feet. Deckle & McCarley's No. 1 Garcia, Survey 918, located 150 feet to south and west lines, has resumed drilling and are down 1,500 feet.

Zapata County

Hill, Reiser & Weed's No. 1 H. Rodriguez, Block 1, R. V. Hill Subdivision of the Villa grant, is location 2,190 feet to northwest lines and 450 feet to northeast lines.

Bexar County

Allen Burnam's No. 1 Ward, southwest of Martinez in the A. A. Gardiner Survey, is shut down at approximately 1,000 feet for repairs. Larsen-Walsh and others' No. 1 Oppenheimer, William Miller Survey No. 180, and 18 miles southwest of San Antonio, is drilling at 1,060 feet. C. J. LeCompte's No. 2 Diaz, Survey 32, Block 4,283, and 450 feet north of No. 1, is shut down at 72 feet with surface casing set and had gas showing around 70 feet.

Bastrop County

Mrs. McMurtray's No. 1 B. L. Duran, L. Flint Survey, 150 feet to northwest lines and 900 feet to southwest lines and 2 miles west of Red Rock, is drilling at 2,461 feet. Noack & Laning's No. 1 Roemer, Isaac Casner league, is shut down at 1,925 feet. B. W. Owens' No. 1 Ed Jones, 150 feet to north and west lines of the tract and 2 miles northeast of Cedar Creek, is rigged up.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 920 feet to north line and 660 feet to east line and 8 miles east of Blanco City, is drilling at 107 feet. Robert Rodson's No. 1 Glasscock, Survey 50, at 150 feet to CEL, is at 450 feet and shut down for repairs necessitated by a freeze and will resume drilling at once, in hard formation.

Caldwell County

Lu-Tex Oil Co.'s No. 1 Wilson, A. Floyd Survey, 2,320 feet to east line and 200 feet to south line and 2 miles northeast of Luling, has set surface casing at 40 feet. Detex Oil Co.'s No. 1 Hardeman, 4 miles north of Luling, is shut down at 3,075 feet. H. C. Ratcliffe's No. 1 Brisco, James Hindes Survey, center and northeast of Luling, is standing; No. 1 J. L. New, same survey, is shut down at 2,914 feet.

DeWitt County

Durbin Oil Co.'s No. 1 Gohmert, G. W. Brooks League, 175 feet to north line and 300 feet to east line, is drilling at 2,570 feet. Empire Southern Oil Co.'s No. 2 Smith, Survey 3, is shut down at 3,150 feet. H. T. Roe's No. 1 Lienhard, D. J. Bibb Survey, center, is shut down at 950 feet.

Frio County

Karnes and others' No. 1 J. J. Little is shut down at 607 feet. F. A. Lain's No. 1 Edwards, Hooper & Wade Survey, 920 feet to CNL, is shut down at 1,250 feet. P. A. Neilan's No. 2 Blackaller, James Gouley Survey, is shut down at 2,950 feet.

Edwards County

Devil's River Oil Co.'s No. 2 Turney, C.C.S.D.&R.G.N.G. Survey, Section 167, and 600 feet north of No. 1, is shut down at 440 feet with oil showing at 390 feet.

Fayette County

National Oil Co.'s No. 1 J. C. Melcher, S. M. Williams League No. 1, located 300 feet to north and east lines of farm, is moving in machinery. Williams & Phalon's No. 1 Cervenka, F.C.S.L. Survey, Block 97, has derrick up and rig on the ground.

Goliad County

C. W. Simpson's No. 1 Ideus, W. H. Pendleton Survey, 156 feet to north line and 540 feet to west line of lease, is standing at 2,323 feet.

Gonzales County

W. D. Flynn's No. 1 Wilhausen, S. Bateman Survey, east central part of the lease, is drilling at 800 feet. Green & Shall's No. 2 Dubose, J. Pratt Survey, 350 varas to CSL, is shut down at 2,700 feet for fuel. L. L. Jones and others' No. 1 Campbell, Moore & Bridges Survey, SW cor., is shut down at 1,980 feet. W. G. Malone is drilling water well in preparation to drilling No. 1 Mrs. D. G. Staton, 3½ miles south of Slayden. L. P. Unkel's No. 3 Johnson, deep test in the shallow Slayden Field, is drilling at 1,000 feet in gumbo.

Guadalupe County

O. W. Killam's No. 1 J. W. Calvert, Fulcher Survey, 110 feet to north line and 1,250 feet to west line and 6 miles east of Seguin, topped chalk at 1,600 to 1,813 feet, topped Edwards at 1,975 feet and is now drilling at 2,000 feet. J. M. Rentz' No. 1 Siligman & Freeman, Gustavus Chotwell Survey, 1,100 feet to southwest lines of farm and survey and 1,130 feet to southeast lines of farm and 6 miles west of Prairie Lea, has spudded in and set surface casing.

Hays County

Orren Estess, H. J. Moore & King's No. 1 C. N. Sledge, Hunton & Jones Survey, 1 mile from Kyle, has derrick completed. H. E. Rodgers' No. 1 Hohenburg, 2½ miles east of San Marcos, is to make test at 2,189 feet.

Jackson County

J. B. Douglas' No. 1 C. O. Lowrance, 12 miles northwest of Edna, has derrick up.

Karnes County

Reynosa Oil Corp.'s No. 2 Butler, Block 43, located 1,000 feet south of No. 1, is fishing at 2,007 feet.

Kerr County

Walker-Van Duyn's No. 1 Barfield, B. B. Pack Survey, 4,700 feet to north line and 450 feet to east line, is underreaming at 2,010 feet.

Live Oak County

War. Wood Hunt's No. 1 McNeil, Jane Curry Survey, at 4,000 feet to NE cor. and 3,000 feet to northwest lines, is drilling at 2,050 feet.

Medina County

Pat M. Armstrong's No. 1 Mangold, Survey 62, located 200 feet to south and east lines, is drilling at 700 feet. Chacon Oil Co.'s No. 2 Jungman, Survey 31, at 1,500 feet to east line and 500 feet to south line, is standing at 1,675 feet. Medina Oil Co.'s No. 1 Taylor, Survey 135, is shut down at 1,230 feet. Morgan-Walsh's No. 1 Haby, Survey 50 1-2, located 330 feet to west line and 600 feet to south line of survey and southwest of Dunlavy, is waiting on surface casing.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 1 Indio, Survey 14, has set casing at 4,270 feet. Ryeade Oil Corp.'s No. 1 Chittim, Section 129, Block 7, is at 4,295 feet waiting on water; No. 2 Chittim, Section 158, Block 7, is drilling at 4,050 feet.

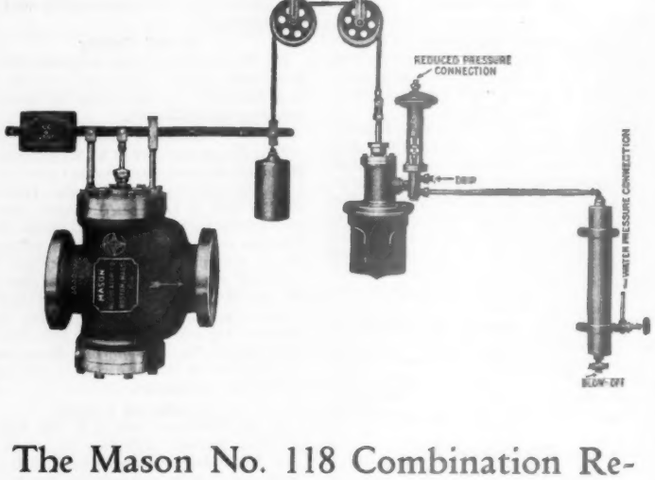
McMullen County

Houston Gulf Gas Co.'s No. 1 Lark, O'Boyle Survey, is shut down temporarily at 1,500 feet.

San Patricio County

Ed Leach's No. 2 Collins, Edward McGloin Survey, SE Section 39, and a few miles northwest of Mathis, at 2,368 feet has set and cemented casing and will drill in March 6. National Oil Co.'s No.

Accurate control for oil charging pumps



The Mason No. 118 Combination Reducing Valve has proved especially effective for controlling oil charging pumps to stills, absorbers and tanks.

It maintains a steady, accurate steam pressure to the charging pump—indefinitely and without attention.

It may also be used effectively as a discharge pressure governor on the same service in connection with the orifice plate system, and can be depended upon to deliver a constant volume of oil to the stills.

Write for drawings showing applications.

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1752

1 Sullivan, J. C. McMullen Survey, 500 feet to SW. cor., at 1,805 feet has put in new boiler and has also received new supply of fuel and will resume drilling within a few days. George Pickett's No. 1 Whitworth, NW NW Section, is drilling at 2,600 feet; No. 1 Garrett is standing at 3,030 feet. John Sigmund's No. 10 Robinson, 60 feet south of No. 9 on a shallow structure, has set and cemented surface casing and resumed drilling.

Travis County

Cranfill & Reynolds and Smith & Clark's No. 1 Otto Schreiver, J. B. Hurd Survey, at 1,120 feet to northwest lines of survey and 150 feet to northeast lines and 3½ miles southwest of Elroy, is drilling at 325 feet. T. P. Garrett's No. 1 Rowe, R. Hornsby Survey, 900 feet to north and east lines and 8 miles east of Austin, is drilling at 1,000 feet in lime with the hole caving.

Uvalde County

Pure Oil Co.'s No. 1 J. D. Smythe, Survey 687, located 740 feet to north line and 146 feet to SE cor. of Survey 20, is at 1,678 feet where drill twisted off and have been fishing since January 14. The company expects to be drilling within a week or 10 days.

Victoria County

J. J. Elam's No. 1 Vol Kutchka, located 200 feet to CNL of Survey 40 of Kutchka Subdivision and 2 miles southeast of Inez, is shut down at 1,000 feet waiting on drill stem. Humble Oil & Refining Co.'s No. 1 Jaeggli is drilling at 595 feet; No. 1 Welder is drilling at 1,163 feet. R. M. Talbott's No. 1 Reeves, located 2,000 feet to west line of Reeves estate, is shut down at 1,825 feet.

Val Verde County

Independent Operators are preparing to resume drilling at 3,900 feet on No. 1 Whitehead, SE SE, Section 30, Block 4. East Del Rio Oil Co.'s No. 1 Russell, Section 183, is shut down at 3,210 feet. Magnolia Petroleum Co.'s No. 1 Whitehead, Section 81, Block D, C.C.&S.F. Survey, is drilling at 6,175 feet. O. O. Owens and others' No. 1 Mills, Section 128, Block 1, is shut down at 4,210 feet. W. V. Traves' No. 1 Wilson, Section 115, Block E, is shut down at 905 feet.

Zavala County

J. G. Pundt's No. 2 West is location about 1 mile from the No. 1 recently completed as a small gas well. Witherspoon Oil Co.'s No. 1 West, 200 feet northeast of old Sun Oil Co.'s well, is drilling at 800 feet.

LOUISIANA-ARKANSAS

(Continued from Page 51)

15-22-7, at 2,320 feet. United Carbon Co. cemented 12-inch surface casing at 167 feet on No. 1 Bastrop Pulp & Paper Co., Section 18-21-6, and is drilling at 360 feet; No. 1 J. Davis is a new location 485 feet south and 326 feet west SE cor. SE, Section 21-20-4.

Ouachita Parish—Hatcher & Evans have made location for No. 7 fee, 529 feet south and 724 feet east NE cor., Section 21-19-4. Imperial Oil & Gas Products Co.'s No. 5 Stubbs, Section 13-19-3, began drilling February 16, set 12-inch casing at 190 feet and 8-inch second string at 808 feet. Palmer Corp.'s No. 1 Kate Cole is a new location 1,880 feet north and 626 feet east SW cor., Section 38-20-4, and has derrick up. United Carbon Co.'s No. 2 Nelson fee, Section 6-19-5, is drilling at 2,117 feet.

Union Parish—Barbour Oil Co. is coring lime at 2,405 feet in No. 1 Tugwell, Section 21-22-1e. Industrial Gas Co. cemented 8-inch casing at 921 feet on No. 2 Hill, Section 9-20-3. Moody & Seagraves have set 12½-inch casing at 176 feet on No. 1 Robertson, Section 34-23-3e. Natural Gas & Producing Co. has made location for No. 1 Lewis in Section 14-20-3e, but check is not reported. R. W. Rhodes has location and derrick up for No. 1 Upshaw, 200 feet south and east NW cor. NW SW, Section 14-23-2w.

Richland Parish

Dixie Oil Co. has derrick up for No. 1 McCow, 660 feet north and east of the C Section 29-16-6. W. C. Feazell has rig for No. 1 Noble, 4,917 feet west and 660 feet south NE cor. SE, Section 36-16-5, and has begun drilling No. 1 Duff in Section 21-16-6. Gulf Refining Co.'s No. 3 Rhymes, Section 28-17-6, cemented 9-inch casing at 2,310 feet. Moody & Seagraves' No. 1-A Sartor, Section 8-16-6, cemented 10-inch second string at 925 feet and is drilling at 1,050 feet; No. 1-B Sartor, Section 9-16-6, has rig up; No. 1-C Sartor, Section 17-16-6, set 8-inch at 925 feet and has a fishing job at 1,288 feet. Natural Gas & Fuel Corp.'s No. 3-A Thompson got through the water sand that caused a blowout and loss of No. 2-A Thompson, Section 21-16-6, set 10-inch casing at 926 feet and is drilling. No. C-4 Thompson, 947 feet south and 820 feet west NE cor. of the same section, 120 feet east of No. 2-C, is rigging up. Nos. C-3 and C-4 are relief wells to the crater of No. 1-A Thompson. Southern Carbon Co. has derricks up for No. 1 D. R. Sartor, Jr., 1,320 feet north and 1,980 feet west SE cor., Section 9-16-6, and for No. 3 Sartor, 660 feet north and west SE cor. SW, Section 18-16-6; No. 2 Sartor, Section 20-16-6, is drilling at 2,302 feet and No. 1 Spann, Section 8-16-6, cemented 6-inch casing at 2,297 feet.

Sabine Parish

Ruffin and others have drilled 2 feet into the sand 3,206-8 feet in No. 1 McElroy, Section 33-10-12, and are arranging to test.

Webster Parish

Cotton Valley—Humble Oil & Refining Co. has rig up for No. 2 Webb, Section 14-21-10. Magnolia Petroleum Co.'s No. 1 Cole, Section 27-21-10, has 6⅝-inch casing cemented at 4,340 feet; No. 1 D. G. Cox, Section 22-21-10, is waiting on 6⅝-inch casing to be set at 4,309 feet and No. 1 J. M. Mixon, Section 22-21-10, is drilling lime at 4,214 feet. Ohio Oil Co.'s No. 2 Crichton, Section 21-21-10, is in anhydrite at 4,299 feet. Palmer Corp. has made location 1,975 feet east and 990 feet north SW cor., Section 22-21-10, for No. 1 Mixon.

Sarepta and Shongaloo—C. H. Lyons and others' No. 1 Munn, a new location 1,980 feet west and 1,300 feet south NE cor., Section 1-22-10, is drilling at 250 feet; No. 1 Porter-Wadley, Section 36-23-10, cemented 6-inch casing at 2,675 feet. Magnolia Petroleum Co. has rig up on No. 1 C. O. Bailey, Section 29-23-9; No. 1 J. L. Munn, Section 36-23-10, is shut down waiting orders at 2,704 feet after passing up 3,000,000 feet of gas at 2,696 feet; No. 1 R. J. Munn, Section 29-23-9, is drilling at 2,453 feet and No. 1 Mary Wise is a new location 66 feet south and east of the C Section 30-23-9. Sun company is rigging up on No. 1 Haines, Section 30-23-9.

ARKANSAS

Nevada County

Autrey Oil Co. set 10-inch surface casing at 60 feet, and 6-inch at 1,200 feet in No. 1-F J. Haynie, Section 6-14-20.

Ouachita County

Smackover—Little Fay Oil Co.'s No. 4 Robertson, Section 25-15-16, has 400 feet of oil standing in the hole from 4 feet of sand, total depth 2,051 feet, and is waiting on standard rig to pump. Ohio Oil Co. is drilling No. 1 Cramer, Section 22-15-16, at 2,240 feet.

Union County

El Dorado-East Side—Grimes Brothers have rig up for No. 2 Hill, Section 7-18-14. Mellor and others began drilling No. 1 Van Hook, February 22, set 10-inch at 142 feet and are drilling at 1,600 feet. Mountz and others' No. 1 Pratt, Section 8-18-15, is drilling at 2,166 feet.

Champagnolle—Eddie Jones has rig up for No. 1 Stegall, Section 2-17-14. Oilwell Corp. and Magna Production Co.'s No. 1 Dumas, Section 11-17-14, is shut down waiting orders after shooting at 3,099 feet without success. No. 1 Townsend, Section 10-17-14, cemented back from 3,047 feet to 2,600 feet and is milling out casing. It showed for 15,000,000 feet of gas in sand from 2,740-46 feet and was dry at 2,829 feet with a water sand just below. Pure Oil Co.'s No. 1 Gregory, Section 10-17-14, tested another show of gas and bailed dry at 2,952 feet after getting an estimated 7,000,000 feet of gas with some salt water in 7 feet of sand at 2,719-25 feet. Rushing and others' No. 1 E. F. Gregory, Sec-

tion 11-17-14, is shut down waiting orders after testing salt water at 2,740 feet; and No. 2 Gregory in the same section is temporarily abandoned at 2,570 feet. Simmerall and others' No. 1 Finley, Section 12-17-14, was dry at 3,010 feet and drilling 10 feet further cored black shale 3,020-22 feet.

EAST TEXAS

Harrison County

Doney and others are rigging up No. 2 Furrh in the Joel Lipscomb Survey. Fuller & Fuller's No. 3 Furrh, 3,447 feet south and 2,449 feet west NE cor. James Short Survey has set 10-inch surface casing at 102 feet, 6-inch at 973 feet, tested dry at 990 feet, perforated casing at 900 feet and is arranging to test; No. 4 Furrh, 4,080 feet north and 485 feet west SE cor. of the same survey, is a location. Magnolia Petroleum Co. is rigging up to drill No. 2 A. G. Vincent, 3,436 feet north and 1,650 feet west SE cor. R. W. Bedford Survey. State Line Oil & Gas Co.'s No. 6 Waterman, E. Pollock Survey, cemented 6-inch at 2,315 feet, tested salt water at 2,918 feet and has plugged back to 2,385 feet. Tylong Oil & Gas Co.'s No. 1 Armstrong, Simpson Holloway Survey, bailed dry after a show of oil and gas at 1,988 feet and is drilling at 2,150 feet. Waterman Brick & Tile Co. has made location for No. 6 Hickman (formerly Waterman Development Co. lease) 2,950 feet north and 330 feet west SE cor. E. Pollock Survey, 100 feet south of No. 5 completed this week as a 15,000,000-foot gasser in the 2,800-foot horizon.

Panola County

J. H. Dickson has made location for No. 1 Cummings, 1,300 feet south and 300 feet west NE cor. James Johnson Survey. S. H. Gardner and others set 101 feet of 10-inch surface casing and are drilling at 1,650 feet on No. 1 Cavin, B. C. Jordan Survey. Hines and others' No. 1 P. W. Baker, George Goodman Survey, is drilling at 1,920 feet. Magnolia Petroleum Co. is rigging up on No. 1 T. C. Adams in the J. M. Birdsong Survey; No. 14 C. G. Steel, B. C. Jordan Survey, has 6⅝-inch casing cemented at 2,287 feet; No. 1 E. C. Tillery in the Jane Thorp Survey, is drilling lime at 2,352 feet after a show of oil and gas that failed to develop commercial production and No. 1 Leigh Trosper in the B. Stevenson Survey, is drilling sand at 1,949 feet. Natural Gas Products Co.'s No. 2 Adams, 1,419 feet north and 330 feet west SE cor. Evans Bracklin Survey, is drilling at 650 feet with 10-inch surface casing set at 101 feet. The Texas Company's No. 8-B Adams in the Isom Hatcher Survey, has 500 feet of water in the hole after drilling 6-inch plug at 1,010 feet and is shut down waiting orders.

GULF COAST FIELDS

(Continued from Page 49)

rado County. This was down 558 feet in gumbo. Waldvogel and associates have started drilling in their No. 2 Tanner, also near Glidden. Rich Oil Corp. is drilling below 1,200 feet in No. 1 Von Rosenburg fee, Colorado County, and B. A. Johnson's No. 1 Breeding is reaming.

Rucks and associates are drilling at 1,125 feet in No. 2 Muldoon, Brazoria County, while Stanfield & Meyers are down 1,100 feet in No. 1 McNeil. Juanita Oil Co. has resumed drilling in its No. 1 Kitsman at Cypress, Harris County, and is down 1,410 feet.

In Jackson County, Wright & Douglas have a rig up for No. 1 Lawrence, 12 miles northwest of Edna. Wright Brothers, who had rigged up for No. 7 Drushel, at Edna, have moved the rig away and will not drill at present.

A. M. Dean and associates are ready to start drilling in their No. 1 Masham, Jefferson County. This is 11 miles northwest of Spindletop and a mile south of Voth. Freeport Sulphur Co. has a location for another test at Big Hill: No. 11 Staiti. Nine Staiti tests have been abandoned since last October. James McMurry and associates are drilling at 3,005 feet in No. 2 Crosby, 5 miles northeast of Port Arthur. Port Arthur Oil & Gas Co.'s No. 4 West has been shut down.

In Tyler County, Union Sulphur Co.'s No. 1 Wynn Buchana is in a water sand at 1,905 feet.

Miscellaneous Louisiana Wildcats

Roxana Petroleum Corp. is moving in timbers for a derrick for No. 1 Watkins, at Black Bayou, Cameron Parish. Black Bayou is a new prospect of Roxana, lying east of the Hackberry Domes. No new wells were completed at East Hackberry, but another new test is starting: Yount Lee Oil Co.'s No. 8 State, in Kelso Bayou, 240 feet north and 162 feet east from the SW cor. of Section 36-12s-10w. Roxana's test is 1,640 feet north and 40 feet east from the SW cor. of Section 8-12s-12w.

C. O. Noble and associates, on the old Hackberry Dome, 1½ miles southwest of the East Hackberry operations of Calcasieu Oil Co., are cementing casing in No. 1 Ellender.

At Sweet Lake, Cameron Parish, Pure Oil Co. has gone into its No. 2 Sweet Lake, which has been shut down since last November, and is whipstocking at 4,505 feet. The hole will be deepened. No. 3, the discovery well, is being worked over again.

Newton Drilling Co.'s No. 1 Dupre, at Lake Charles, Calcasieu Parish, is drilling around 3,825 feet. Evangeline Oil Co.'s No. 1 Ducide Guillery, at Pine Prairie, Evangeline Parish, is down 2,600 feet.

Roxana Petroleum Corp.'s No. 1 Wilbert, at White Castle, Iberville Parish, is coring below 2,062 feet. In the same parish, on Bayou Blue Dome, Union Sulphur Co. has abandoned temporarily its No. 1 Schwing, with the drill stem stuck at 2,852 feet.

Blue Ridge—Fort Bend County

Five wells were completed at Blue Ridge during the week with a total initial production of 4,100 bbls. H. R. Cullen's No. 1 Davidson was the largest, coming in flowing 2,200 bbls. daily from sand at 3,500 feet. Gulf Production Co.'s No. 11 Luscher came in flowing 1,700 bbls. from sand at 3,623 feet. Fort Bend Oil Co. (Gordon interests) got two small wells, Nos. 2 and 3 Blakely, the former at a depth of 3,125 feet and the latter at 2,190 feet. Gordon & Sharp's No. 2 Blakely came in flowing 100 bbls. from sand at 1,856 feet.

Blakely & Means' No. 1 Blakely tested salt water at 3,315 feet and is standing. H. R. Cullen's No. 1 Luscher is drilling around 3,530 feet and his No. 1 Lafferty at 3,565 feet. Cunningham Production Co.'s No. 4 Blakely hit salt at 3,150 feet and is shut down. Fort Bend Oil Co.'s No. 1 Blakely is drilling at 1,875 feet. Navarro Oil Co. has set strainer in No. 3-B Robinson for a test of sand at 3,625 feet. H. G. Nelms is rigging up for No. 1 Overly. Sam Watts and associates, who recently completed No. 2 Blakely for a small producer, have a location staked for their third test on the lease.

Big Creek—Fort Bend County

Big Creek operations continued routine. Gulf Production Co.'s No. 39 Davis, an old well being deepened, is drilling at 3,160 feet. This company's No. 45 Davis, a new test, is washing at 3,540 feet, and The Texas Company's No. 3 Wheat is drilling at 4,050 feet.

Hardin County Domes

At Batson, East Batson Oil Co. has completed No. 10 Conzelman pumping 35 bbls. from sand at 1,175 feet. Ada Bell Oil Co.'s No. 118 Producer is drilling at 960 feet. Capitol Oil Co. has a rig up for No. 10 Hodges.

Rio Bravo Oil Co. has started a new test at Saratoga. This is No. 81 Jordon which is down 350 feet. Gulf Production Co.'s No. 25, B.B.B.&C., is drilling at 913 feet. At Sour Lake, Gilbert Oil Co. has a location for No. 101 fee. Gulf Production Co.'s No. 1 Hamman is drilling at 2,250 feet. Its No. 3 Thompson tested salt water but is to be deepened. It was at 3,710 feet. Theis Oil Co. is drilling at 2,375 feet in No. 3 Merchant. Humble Oil & Refining Co. completed No. 2 Parish & Ireland pumping 200 bbls. net at 1,903 feet.

Pierce Junction—Harris County

Woodward & Lee (Moody-Seagraves) worked over one of their old wells, No. 1 Settegast, during the past week and

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brought it back in flowing 1,680 bbls. through a half-inch choke from sand at 3,361 feet. This was Pierce Junction's only new production. Gulf Production Co. abandoned its No. 9 Taylor which was to have been deepened.

Anderson & Plummer are drilling deeper in their No. 2 Whitehead which last week tested dry. It now is down 4,520 feet. Joe Bashara has resumed drilling in No. 2 fee, and is at 3,100 feet. H. R. Cullen is sidetracking at 4,930 feet in his No. 4 Howe. This test recently blew out and when later brought in made 50 bbls. Gulf Production Co.'s No. 24 Taylor is drilling at 4,035 feet. This company has set strainer in No. 1 Saunders for a test at 4,200 feet. Leonard and associates' No. 1 Settegast is drilling at 5,310 feet. Moody Corp.'s No. 3 Hume tested dry at 4,355 feet. This company's No. 1 Cooper has strainer set for a test at 4,630 feet, and No. 1 Marland fee is drilling at 4,875 feet. A second hole has been started for No. 2 Whitehead, which is down 1,100 feet. The first was abandoned last week at 3,090 feet. Navarro Oil Co.'s No. 2-A Cain is drilling at 5,200 feet. Rio Bravo Oil Co.'s No. 1 Settegast is drilling at 2,690 feets, its No. 2 G.H.&S.A. around 4,400 feet, its No. 101 G.H.&S.A. around 5,500 feet, No. 8-A Settegast at 4,100 feet, and No. 7 Bender at 4,360 feet.

Goose Creek—Harris County

Gulf Production Co.'s No. 16-A Tabb is drilling at 2,950 feet, and its No. 19 Hoffman-Gaillard at 2,850 feet. Humble Oil & Refining Co.'s No. 73 Simms-Smith still is in sand at 5,288 feet. This company's No. 10 Sweet, also is in sand at 2,626 feet. No. 5 Gaillard is drilling at 2,825 feet. Lube Well Oil Co. is to sidetrack at 1,600 feet after failing in a fishing job in No. 1 Dannebaum.

Spindletop—Jefferson County

Spindletop's completions numbered only three small producers. Gulf Production Co.'s No. 7 Jack & Duff was brought in flowing 150 bbls. of oil from a total depth of 5,100 feet, and its No. 8 Jack and Duff 100 bbls. net oil from sand at 4,957 feet. Sun Oil Co.'s No. 19 Marrs McLean flowed 310 bbls. initially from sand at 5,160 feet.

Gulf Production Co.'s No. 13 Oakwood is drilling at 4,845 feet, and its No. 13-A Weed at 2,475 feet. No. 12-A Weed also is to be deepened and is down 5,218 feet. Gulf's No. 230 Gladys is drilling at 780 feet. Magnolia Petroleum Co. is working over its No. 4 fee and has set strainer at 5,025 feet. Rio Bravo Oil Co.'s No. 54 T.&N. is drilling around 4,400 feet. Sun Oil Co.'s No. 20 McLean is drilling at 5,321 feet. This company also has a derrick up for No. 1 Prather. The Texas Company's No. 1 Gladys City, an extension test on the west flank, is drilling around 700 feet.

North of Spindletop, Traders Oil Corp.'s No. 1 Cissell is drilling at 3,575 feet. Also of interest is Battleship Oil Co.'s No. 3 Parker on the northeast flank in which strainer has been set for a test at 2,875 feet.

Hull—Liberty County

Republic Production Co. has completed its No. 41 Dolbear flowing 600 bbls. daily from sand at 2,675 feet. Gulf Production Co. got a small pumper in its No. 89 Phoenix which is making 40 bbls. from sand at 3,233 feet. The latter company is working on one other well, No. 40 Phoenix, in which casing is being milled out preparatory to deepening. Republic Production Co. is drilling in No. 73 Dolbear at 2,840 feet and has set strainer in No. 4 for a test at 2,580 feet. This company also has a rig up to deepen No. 7. The Texas Company's No. 7 Hannah (operated jointly with the Vacuum Oil Co.) is drilling sand and shale at 4,835 feet. Mecom Oil Co.'s No. 4 Taylor which recently tested salt water at 4,025 feet is to be deepened. Empire Gas & Fuel Co. has a rig up for No. 28 Barngrover.

South Liberty—Liberty County

Following the completion the past week of two more wells north of the South Liberty Field, locations have been made for three more tests while two other tentative locations have been made. J. S. Abercrombie has a location for No. 1 Lacour, Sun Oil Co. one for No. 1 Bashara, and The Texas Company for No. 2 Green. The Sun company has tentative locations for No. 2 Bashara and No. 1 Singleton, which are not to be drilled pending completion of other tests. The two new wells are The Texas Company's No. 1 Green, which came in flowing at the rate of 2,500 bbls. from a total depth of 2,288 feet and Sun Oil Co.'s No. 1 Mitchell, whose initial flow was at the rate of 200 bbls. daily at 3,260 feet. The latter since has increased to around 700 bbls. daily, while The Texas Company's well is making around 1,500 bbls. The Texas Company's No. 8 Monroe heirs is drilling at 2,170 feet.

High Island—Galveston County

McLean Oil Co. has abandoned its No. 6-C Cade, which tested salt water at 2,335 feet. This company has staked a location for No. 12 Cade. Gulf Production Co. also is to drill a new test, No. 1 League, for which a derrick is up. Gulf's No. 2-A Smith is making up drill stem to deepen while its No. 2 Smith is drilling at 4,928 feet.

Orange—Orange County

Sinclair Oil & Gas Co.'s No. 4 Granger, an old well deepened to 3,525 feet, was brought in during the week flowing at the rate of 740 bbls. daily. This well was deepened following the completion over a month ago of No. 5 Granger which came in flowing 4,000 bbls. daily. Brownie-Babbette Oil Co.'s No. 8 McLean is drilling at 4,040 feet. Gulf Production Co.'s No. 2-A Kishi-Lang is down 2,550 feet, and its No .6 Chessom at 3,504 feet. Rex Petroleum Co.'s No. 10 Carbello is drilling at 3,010 feet. Rycade Oil Corp.'s No. 13-E State is being deepened. It tested salt water recently at 4,798 feet.

Boling—Wharton and Fort Bend

The following are recent completions and abandonments in the Boling shallow district not previously reported: Texas Gulf Sulphur Co.'s No. 2 Anderson, abandoned in gyp at 865 feet; same company's No. 12 Bay, abandoned in salt at 1,850 feet; No. 6 Chase, abandoned in cap rock at 950 feet; No. 2 Davidek, abandoned in salt at 1,061 feet; No. 2 Kelly, abandoned in gyp at 770 feet; No. 3 Kelly, abandoned in gyp at 912 feet; No. 4 Kelly, abandoned in gyp at 740 feet; Weed-Gayle Oil Co.'s No. 12-A Bay, initial production 288 bbls. at 430 feet; same company's No. 15 Bay, 200 bbls. at 430 feet.

SOUTH LOUISIANA FIELDS

Jennings—Acadia Parish

Jennings Petroleum Co. has completed its No. 4 Eunice-Crowley pumping 45 bbls. from a total depth of 1,700 feet. The Texas Company has abandoned its No. 4-B Latrielle because of salt water at 2,130 feet. E. L. Myers has started his No. 2 Arnandet, an old well, and is at 1,540 feet.

Edgerly—Calcasieu Parish

J. G. Sutton and associates (Plummer Oil Co.) have abandoned No. 1 Lyons at 3,790 feet. Gilmer Oil Co.'s No 1 Fairchilds is drilling below 1,350 feet. Green Oil Co.'s No. 9 Moore has strainer set for a test at 3,200 feet. This company also is making arrangements to deepen No. 5 Moore. Rex Petroleum Co. has set strainer for a test at 3,570 feet. Wilson-Broach are sidetracking in No. 3 Wilson to deepen from the sand at 3,753 feet which tested salt water.

Lockport—Calcasieu Parish

Vacuum Oil Co. and Gulf Refining Co.'s No. 3 Farquahar is drilling sandy shale and shell at 3,703 feet. These operators' No. A-1 fee has touched the sand at 5,584 feet. No. 6 Bordages is being reamed to set 12½-inch surface casing at 1,273 feet. Total depth of the hole is 1,278 feet. No. 1 Calcasieu River is being spudded and a rig is up for No. 5 Lock-Moore.

Vinton—Calcasieu Parish

Vinton Petroleum Co.'s No. 9 Gordon, which was shut in as a gasser, has been completed flowing 125 bbls. of oil from sand at 3,175 feet. Edgerly Petroleum Co.'s No. 11 Vincent is drilling at 3,760 feet. Marrs McLean is setting strainer for a test at 2,110 feet in No. 1 G.&N.G.

Starks—Calcasieu Parish

Gulf Refining Co.'s No. 10 Industrial is drilling below 3,200 feet. This is the only drilling test in the field.

KANSAS WILDCATS

(Continued from Page 44)

E. B. Shawver's No. 1 Mullett, C NW SE Sec. 31-34-3 ... Spudded.
Vickers Petroleum Co.'s No. 1 Daniels, NE cor. NW Sec. 2-36-3 ... Shut down 1,800 ft.
E. B. Shawver No. 1 Mullett, C NW SE Sec. 31-34-3; gas rights only ... Spudded and shut down.

DICKINSON COUNTY

Harwood & Winters' No. 1 Utech, SW cor. SE NW Sec. 35-16-4 ... Dry and abandoned 2,601 ft.
McBride & Goens' No. 1 Shirley, NE cor. SW Sec. 21-12-4 ... Shut down 3,120 ft.

ELLIS COUNTY

J. H. Tatlock et al's No. 1 Leiker, NW cor. NE NE, Sec. 26-12-16w ... Sand, 3,237-40 ft; 10 bailers of water; shut down.
E. H. Hood and others' No. 1 Butler, C SE SE Sec 15-26-11 Machine.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, SE cor. NE SW Sec. 27-8-25w ... Shut down 3,270 ft.

GREENWOOD COUNTY

Carnes & Bly's No. 1 Smith, NE cor. SE Sec. 4-24-13 ... Drilling 1,250 ft.
O. W. Culp's No. 1 Smith, C NE SE Sec. 28-27-13 ... Dry and abandoned 1,575 ft.
Eureka Oil Co.'s No. 1 Brothers, SE cor. NW Sec. 35-23-11 ... Drilling 2,411 ft.
C. A. Devine's No. 1 Bradford, SW cor. NE Sec. 22-26-11 ... Shut down 600 ft.
C. E. Hawks' No. 1 Lessman, SE cor. SW Sec. 14-21-10 ... Shut down 1,720 ft.
T. C. Johnson's No. 1 Knox, NE cor. NW Sec. 8-23-13 ... Shut down 1,705 ft.
Kismet Oil Co.'s No. 1 Richardson, SW cor. NE SW Sec. 26-22-11 ... Location.
Sharpless and others' No 1 Corder, SW cor. SE SE Sec. 22-23-12 ... Shut down 1,310 ft.
Smith & Rockhill's No. 1 McDair, NW cor. SE, Sec. 20-26-12 ... Drilling 1,600 ft.

HARPER COUNTY

Barbara Oil Co.'s No. 1 Blunk, C NW NE Sec. 20-34-13w ... Drilling 1,610 ft.
Amerada Pet. Corp.'s No. 1 Mendiville, C SE SE, Sec. 24-34-6w ... Fishing 4,625 ft.
Sam Jarvis' No. 1 Wyckoff, SW cor. NW Sec. 11-34-4w. Drilling 4,250 ft.
Sam Jarvis' No. 1 Warneke, SE cor. SW sec. 4-34-3w ... Shut down 4,207 ft.
Gypsy Oil Co.'s No. 1 Douglas, NE cor. SE NW Sec. 23-34-2w ... Top Wilcox, 4,493 ft; T.D., 4,500 ft; est. 200 bbls; S.D.

JEFFERSON COUNTY

Wichita Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ... Rigged up and shut down.

KINGMAN COUNTY

James Madison's No. 1 Ballein, SW cor. NW NW Sec. 21-28-5 ... Drilling 3,523 ft.

LANE COUNTY

Robinson and others' No. 1 Dickerson, SW cor. NW SE Sec. 11-18-27w ... Cleaning out 2,645 ft.

LOGAN COUNTY

W. H. Koons', Trustee No. 1 Edwards, NW cor. NW Sec. 14-14-33w ... Shut down 4,310 ft.

MARION COUNTY

Anderson Brothers' No. 1 Benth, SE cor. SW SW Sec. 31-18-5 ... Drilling 2,010 ft.
Franks et al's No. 1 Wright, SW cor. NW NW, Sec. 9-19-4 ... Rig.
Givens and others' No. 1 Ucker, SW cor. NE Sec. 31-17-4 ... Underreaming 1,520 ft.
T. C. Johnson's No. 1 Thompson, SW cor. NE Sec. 26-17-4 ... Drilling 1,400 ft.
Sun Ray Oil Co.'s No. 1 Lehrman, SW cor. NE SE Sec. 1-21-4 ... Fishing bailer 3,750 ft.

MEADE COUNTY

Blackwell Oil & Gas Co.'s No. 1 Boyer, SE cor. NW SE Sec. 9-33-28w ... 8-in. casing 3,205 ft.; total depth 3,315 ft.; shut down.

MORRIS COUNTY

Cress & Hawkey's No. 1 Grendler, NW cor. SE Sec. 16-15-5 ... Spudded.
Hugh Faulder's No. 1 Wendt, SW cor. SE SE, Sec. 18-15-5 ... Rig.
Fisher & Louck's No. 1 Stroda, NW cor. SE Sec. 6-16-5 ... Underreaming 2,210 ft.
Graham Brothers' No. 1 Nelson, NE cor. SE Sec. 30-17-5 ... Drilling 1,420 ft.
Matthews and others' No. 1 Walters, SW cor. NE Sec. 14-15-5 ... Rigging up.
Moss & Nelson's No. 1 Smith, SW cor. SW Sec. 18-16-5 Rig.
Skelton and others' No. 1 Illes, NW cor. NW Sec. 25-16-5 ... Rig.

McPHERSON COUNTY

Franks and others' No. 1 Wright, SW cor. NW NW Sec. 9-19-4 ... Rig.
D. I. Hall's No. 1 Gray, NW cor. SE NW Sec. 20-20-3w ... Spudded and shut down.
C. W. Lamer's No. 1 Lamer, SE cor. SW Sec. 1-17-3w ... D.R., 3,495 ft.
The Texas Company's No. 2 Chinberg, NW cor. NE NW Sec. 32-18-2w ... Underreaming 2,270 ft.
Danciger Oil Co.'s No. 1 Willem, NW cor. SE SE Sec. 6-22-4w ... Rig and tools.

OSBORNE COUNTY

Prather-Davis-Krueger's No. 1 Pruter, SW cor. SE Sec. 30-9-15w ... Shut down 2,360 ft.

PAWNEE COUNTY

Frank Hopper and others' No. 1 Seifers, NW cor. SW NE Sec. 23-21-11w ... Drilling 3,732 ft.
F. C. Troupe's No. 1 Lovett, C EL NE NE Sec. 31-21-16w ... Drilling 1,560 ft.

POTTAWATOMIE COUNTY

J. J. Crawford's No. 1 College, C W L SW NE Sec. 11-10-12 ... Shut down 2,250 ft.

RENO COUNTY

Danciger Oil & Refining Co.'s No. 1 Williams, NW cor. SE SE Sec. 6-22-4w ... Moved in tools.
Stearns-Streater & Marshall's No. 1 Crabb, SE cor. SW NE Sec. 1-25-8w ... Rig.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w ... Cellar.

RILEY COUNTY

Mutual Oil Co.'s No. 1 Marks, SE cor. NE NW Sec. 26-10-6 ... Shut down 2,400 ft.

ROOKS COUNTY

Keys Petroleum Co.'s No. 1 Rathburn, NE cor. SW Sec. 14-9-16w ... Shut down 1,350 ft.
Krueger and others' No. 1 Poore, NE cor. NE Sec. 14-8-16w ... Spudded and shut down.
Stearns & Streater's No. 1 Matheson, NE cor. SE NW Sec. 28-10-16w ... Drilling 3,431 ft.

RUSH COUNTY

Valerious & Chenney's No. 1 Sheverman, NW cor. SE NW Sec. 27-17-17w ... Spudded and shut down.

SALINE COUNTY

Cress & Hawkey's No. 1 Grendler, NE cor. SE Sec. 16-15-5 ... Rig.
Hugh Faulders' No. 1 Wendt, SW cor. SE SE Sec. 18-15-5 ... Rig.
Mento Oil & Gas Co.'s No. 1 Muir, SW cor. SW Sec. 17-15-2w ... Underreaming 3,205 ft.

SEWARD COUNTY

T. B. Slick's No. 1 Pyle, NE cor. NE Sec. 14-33-33w ... Shut down 1,350 ft.

SHERMAN COUNTY

A. L. Henson and others' No. 1 Murry, NE cor. SE NW Sec. 22-7-4w ... Shut down 2,650 ft.

SMITH COUNTY

Smith & Buchner's No. 1 Rice, SW cor. SW Sec. 13-5-15w ... Rig.

STAFFORD COUNTY

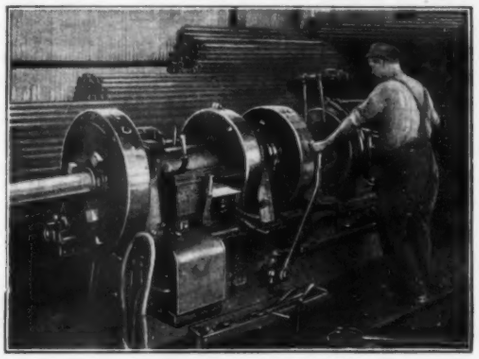
Randall-Johnson's No. 1 Richardson, NW cor. SW Sec. 24-22-11w ... Rig on ground.
Kismet Oil Co. No. 1 Richards, SW cor. NE SW Sec. 24-22-11w ... Location.

SUMNER COUNTY

Otstot and others' No. 1 Barlow, SE cor. SE Sec. 22-23-3w. Shut down 1,860 ft.

WAUBANSEE COUNTY

Empire Gas & Fuel Co.'s No. 1 Schuaem, SE cor. SE Sec. 19-12-11 ... Fishing 3,320 ft.



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TECHNICAL CONTROL OF PETROLEUM REFINERIES

(Continued from Page 34)

which the refinery is supposed to be making.

For this purpose bogey samples are needed consisting of (1) average crude, (2) average rerun naphtha, and (3) average process still charging stock, in case there is a special process, such as a cracking process, in the refinery. At the same time, a copy of the refinery yield statement and a composite of tests on all products made must be provided.

A form is then made up on which average tests for all products made by the refinery are shown. Bogey workups are then outlined to produce the same quality stocks as were made in the refinery. The final report shows refinery and bogey yields in parallel columns. Detailed descriptions of the apparatus used in this work would be of little value for the reason that each refining unit has its own special designs of equipment, which would have to be matched in experimental sized units. The importance of bogey barrel runs can best be shown by a type case. Let us assume that we have a typical refinery equipped with tower stills for crude and rerun operations, coke stills operating on reduced crude and process still capacity to handle all available cracking stock. The materials charged to the various stills might show:

	% Crude
Crude to stills	100.00
Cracking stock to stills	126.71
Pressure still tar to stills	1.47
Total to stills	228.18

Let us assume that the operations in the refinery required the production of five grades of gasoline and naphtha which might be produced in the following amounts:

	% Crude
64-66 gasoline	1.62
60-62 gasoline	1.60
USM gasoline	47.28
437 endpoint gasoline	9.91
450 endpoint naphtha	8.35

Bogey Workup

The individual operations in the bogey workup should be reported as follows:

A. Quality of Crude

I. Tests on Charging Crude

Gravity		35.5
Flash		RT
Pour		20
B.s.		0.3%
Sulphur		0.36%
Over	137°F.	
10%	247	72.0 gr.
20	316	59.6
30	385	51.4
40	469	44.6
50	555	38.8
50% bottoms		22.8

II. Towerstilling Crude
Charge 100 Per Cent Crude—Gravity 35.5

Cut and Grade—	% Crude	Gravity
Over to 43.1—400 end distillate	35.0	58.3
Over to 41.8—91/392 goods	38.0	57.0
Over to 40.3—437 end distillate	41.0	55.9
Over to 39.9—450 end distillate	43.0	54.9
Bottoms—Reduced crude	55.5	24.9
Loss	1.5	
	100.0	

I. Test on Products

Grade—	400 End	91/392 Goods	437 End	450 End	Bottoms
Gravity	58.3	57.0	55.9	54.9	24.9
Initial	123	124	124	128	....
10 per cent	176	176	182	184	....
20	208	209	216	218	....
30	231	235	246	250	....
40	252	257	266	274	....
50	276	282	294	304	....
60	294	312	321	332	....
70	316	335	351	366	....
80	340	358	362	392	....
90E	368	390	414	451	....
End	400	420	438	....	....
Per cent at 221	25.5	24.5	24.0	21.5	....
Per cent at 284	55.0	51.0	47.0	44.0	....
Per cent at 392	....	90.5	84.0	80.0	....

Grades of Gasoline

The purpose of the above breakup is to provide accurate data on quality of crude being charged from month to month. It is, of course, apparent that no refinery could operate commercially and turn out a single grade of gasoline like any of those shown. Sales department demands are varied and many grades must be manufactured. Runs for grades of gasoline specified in the foregoing paragraph are made as follows:

I. Towerstilling Crude
Charge 100 Per Cent Crude—Gravity 35.5

Cut and Grade—	% Crude	Gravity
Over to 47.8—60-62 distillate	27.00	61.6
60-62 grade finished	*1.60	61.6
	25.40	
47.8 to 42.2—Gasoline distillate	10.00	...
U. S. Motor gasoline finished	*35.40	57.5
42.2 to 40.2—W. W. distillate	*7.00	41.2
Bottoms—Reduced crude	*54.50	25.4
Loss	1.50	
	100.00	

Tests on Products

Grade—	60-62 Grade Refinery	60-62 Grade Bogey	U. S. Motor Grade Refinery	U. S. Motor Grade Bogey	W. W. Kerosene Refinery	W. W. Kerosene Bogey
Gravity	62.7	61.6	58.3	57.5	41.0	41.2
Initial	104	116	100	124	387	402
10 per cent	152	167	165	180	415	424
20	182	192	205	208	426	434
30	208	210	233	233	432	438
40	227	227	258	256	438	441
50	244	243	280	278	444	444
60	260	260	304	304	451	447
70	277	279	330	328	460	449
80	300	294	356	354	471	454
90	328	323	386	387	490	459
End	389	364	426	419	536	479
Per cent at 221	37.0	36.5	25.5	25.5 Fl.	148	90
Per cent at 284	73.0	73.0	51.5	52.0 Vis.	450	400
Per cent at 392	97.0	....	91.5	91.0	....	....

II. Reduced Crude and Pressure Tar to Coke
Charge 55.97 Per Cent Crude—Gravity 25.2

Cut and Grade—	%Charge	%Crude	Gravity
Distillate—PS Stock	94.35	52.78	31.8
Bottoms—Coke	5.2	2.91	....
Loss	0.5	0.28	....
	100.0	55.97	

III. Skimming of PS Stock (Refinery Figures)
Charge 132.36 Per Cent Crude—Gravity 31.0

	%Charge	%Crude	Gravity
Heavy rerun naphtha	4.27	5.65	52.6
PS charging stock	95.73	126.71	....
	100.00	132.36	

IV. Process Still Operation (Refinery Figures)

	%Charge	%Crude
PS distillate	30.35	38.46
Gas oil	54.22	68.70
PS tar	1.16	1.47
PT flux	11.70	14.83
Loss	2.57	3.25
	100.00	126.71

V. Naphtha Rerun
Sources of Stock

	%Crude	Gravity
Heavy naphtha	5.65	52.6
PS distillate	38.46	50.3
	44.11	50.4

Towerstilling Rerun Naphtha

Cut and Grade—	%Charge	%Crude	Gravity
Over to 49.4—64-66 Gasoline	47.00	20.73	63.9
64-66 finished	*3.67	1.62	63.9
	43.33	19.11	
49.4 to 41.1—Gasoline stock	20.00	8.82	
U. S. Motor made	63.33	27.93	
U. S. Motor finished	*26.93	11.88	
	35.40	16.05	
41.1 to 40.8—Gasoline stock	2.00	0.88	....
437 and made	37.40	16.93	....
437 and finished	*22.47	9.91	57.0
	15.93	7.02	
40.8 to 40.3—Gasoline stock	4.00	1.76	....
450 end finished	*19.93	8.78	54.0
Bottoms	*25.50	11.25	35.0
Loss	1.50	0.67	....
	100.00	44.11	

Note: PS means pressure still. PT means pressure tar.

TESTS ON PRODUCTS

Grade—	64-66 Refinery	64-66 Bogey	U. S. Motor Refinery	U. S. Motor Bogey	437 End Refinery	437 End Bogey	450 End Refinery	450 End Bogey
Gravity	65.1	63.9	58.3	58.1	57.0	57.0	52.2	54.0
Initial	98	102	100	116	103	120	107	126
10 per cent	144	154	165	176	172	178	183	192
20 per cent	168	171	205	210	213	216	231	234
30 per cent	200	198	233	236	243	246	269	268
40 per cent	219	218	258	262	269	268	304	297
50 per cent	236	236	280	282	293	288	333	322
60 per cent	249	248	304	302	319	312	353	343
70 per cent	264	262	330	319	343	330	383	363
80 per cent	280	276	356	334	368	348	403	378
90 per cent	309	209	386	357	399	366	420	391
End	365	320	428	378	433	342	442	406
Per cent at 221	41.5	41.5	25.5	24.5	23.0	22.5	18.0	17.0
Per cent at 284	81.5	86.5	51.5	51.0	47.0	48.0	34.5	35.0
Per cent at 392	..	..	91.5	..	87.5	..	75.5	90.5

SUMMARY OF PRODUCTS

Grade—	Refinery % Crude	Refinery Gravity	Bogey % Crude	Bogey Gravity
64.66 gasoline distillate	1.62	65.1	1.62	63.9
60.62 gasoline distillate	1.60	62.7	1.60	61.6
U. S. Motor gasoline distillate	47.28	58.3	47.28	57.7
437 end gasoline distillate	9.91	57.0	9.91	57.0
450 end naphtha	8.35	53.2	8.78	54.0
W. W. distillate	3.24	41.0	7.00	41.2
Furnace oil	7.20		None	
Flux	11.47		14.83	
Miscellaneous	1.26		0.37	
Coke	3.87		2.91	
Loss	4.20		5.70	
	100.00		100.00	

Application

A careful examination of the type bogey barrel workup shown reveals the fact that a number of points require explanation. It was assumed in this case that all crude and rerun naphtha in the refinery were handled in continuous tower stills where the degree of fractionation commercially obtainable could never equal that of a laboratory batch unit, tower equipped, performing the same type of operation. For this reason the refinery products always show a wider boiling point range than the corresponding products from a laboratory batch still.

This is seen quite plainly by studying the distillation tests throughout the workup. However, it so happens that when some intermediate point (per cent off at 221, 284 or 392 degrees Fahrenheit) is taken as the control, the yields of products can be matched to a fraction of a per cent on the crude. Again, it must be borne in mind that refineries are obliged to produce certain intermediate products, such as furnace oil and the like, which contain potential motor fuel stocks. In judging the efficiency of refinery operations, low boiling point materials so diverted should be deducted from the bogey figures.

In the type example, the furnace oil made contains enough light ends to account for the shortage of total gasoline production. The place where the refinery statement shows up short is, however, on the production of water white kerosene. This amounted in the above case to about 4 per cent or more on the crude.

A superintendent who has bogey barrel workups on his crude each month is in a position to select the units in the plant where yield is falling below expectation and from experience is able to judge whether additional recovery will pay. In the type case presented for your consideration, it is quite likely that the loss in throughput capacity suffered in attempts to obtain full yields of water white stock would cost more than could be compensated for in the value of the small increased percentage yield involved.

The details given on workups of crude oils and bogey samples from the refinery all deal with a single operation, namely, distillation. This is by far the most important single operation in a plant, but there are many others of only slightly less consequence. The nature of these secondary operations is such that good results can only be obtained when tests are conducted on a semicommercial scale. Certain other activities of a technical staff call for test work under like conditions, so it will be convenient to discuss these matters under a separate head.

Checking Operations

The type of work we are now to consider had to do with checkups on refinery operations where full-scale commercial operations have to be met. For this purpose, a plot of ground at some point convenient to all refinery services, such as electricity, steam, air and so forth must be enclosed and space allotted for tanks, lines, stills, pumps, agitators, filters and other pieces of refinery equipment. In these should be placed units built on a scale to handle stocks in carload lots, if necessary—probably on scale ranging from 20 bbls. up to 100 or 200 bbls. per day. In addition, ground must be set aside for the construction of new pieces of apparatus developed within the organization or offered to it by outside parties.

The staff chosen to handle this unit must be selected with care and the top man must have special talent for the work. He has to know by instinct how to handle any problem and be able to pick merits or flaws in any operation to which he is giving his attention. In fact, to be a genuine success he must eat, drink and breathe petroleum. The personnel of his force should be made up largely of young technically trained men who have the ability to grasp the essential points in problems and the determination to make a thing work or else to find out the reason why it will not. The best slogan such a group of men can have is, "Because a thing failed the hundredth time is not proof it will not work on the two hundredth attempt."

The work carried on in this plant has to do with study of routine refinery operations having for its purpose to find out whether the products made are of the best quality and whether or not costs are being held at the lowest figures possible. The important points to consider are throughput, efficiency of reactions where reagents are employed, and the good or bad quality of the final end products. In addition to this, the matter of corrosion, the wearing out of parts of equipment, the frequency of replacement, and other practical problems, should be borne in mind. This method of operating has a great advantage over full-scale work for

the reason that all steps in a given process are directly under the eye of the man in change. He is able to detect weak spots that would not be observed by the refinery staff in routine operations. In this way ideas for improvements or for entirely new processes are conceived.

Experimental Apparatus

When a change in an old process is proposed or an entirely new method for doing a certain piece of work suggested, experimental apparatus is at once built to incorporate the new practice and put it in routine service. Months and even years of study must be devoted to the new unit before results of a satisfactory nature can be produced. The apparatus may have to be changed a dozen times in this period to meet all refinery conditions. Having passed this stage, the apparatus is fitted up just like a normal refinery unit of the class to which it belongs. It is then operated on a scale having a throughput of 100 to 200 bbls. and all test data is secured based on regular refinery conditions. After a series of such runs in which costs, yields and quality of products shade those for current operations, the proposition is in shape for commercial application.

Developing Inventions

When inventors with nothing more than paper patents offer propositions to the company, they may be asked to join the experimental staff for a period and work out their propositions at the company's expense, the understanding being that the inventors will share in the profits from any commercial use of their basic ideas. What usually happens is that the ideas, if good, are taken over by the company and developed by the experimental staff. In that case the inventor is generally satisfied with a modest royalty.

Another type of inventor may come to the company with his process all worked out. If the preliminary experiments give promise of real money value he will be asked to construct a semicommercial unit at the experimental plant and instruct the regular force in its care and operation. It will be operated to produce the specific products which the refinery has to produce. In the vast majority of cases it will be found that the new process will not work on the stock supplied or else the costs are all out of proportion to the value of the products produced. Occasionally a good process is found and the chance that such a one will be overlooked makes it necessary to investigate them all.

The varied character of work done in such a plant calls for the exercise of a great deal of ingenuity in constructing apparatus. The idea is, to have one typical piece of each kind of apparatus, likely to be required, in such shape that it can be incorporated in any arrangement of apparatus or process being studied. The basic operations dealt with are distillation, chemical treating, dewaxing and filtration, most of which have to be performed in a continuous manner. The first object is always to produce marketable specification products. Ways often have to be devised for small scale testing of products at various ntermediate stages in a process and from these have been developed many of the newer types of refinery processes.

Among these groups of activities belong such operations as mechanical stirring operations of the oils in place of the old air blowing system, contact filtration of oils with fine earth as opposed to the old percolation of oil through porous earth, the de-waxing by centrifuge or filter aids as against the older methods of cold settling or pressing, the reactivations of decolorizing mediums in multi-hearth furnaces, such as are now widely used, instead of an internally fired rotary furnace, treatment of oils in the vapor phase with solid reagents in place of liquid phase treatment with liquid reagents. The details of methods and descriptions of apparatus used have no place in this paper for the reason they have no direct bearing on technical control.

Outside Processes

Let us now turn our attention to the investigations of new processes brought to the attention of an oil company by an outside party or group. This is not to be confused with the investigation of new processes developed within the company itself and which was discussed earlier in the paper.

Processes, and by these I mean also apparatus, auxiliary equipment, or products which are brought to the notice of oil companies, range all the way from mere ideas, without even a definite plan in the mind of some inventor, to complete commercial propositions often fully developed and fully protected by patents. Such processes may cover most any subject. A few of these which come regularly to the technical hand of any oil company are processes for cracking oil, processes for producing or recovering sulphuric acid, manufacture of soaps and greases, vacuum distillation processes, new types of pumps, oil burners, or investigations of deposits of fuller's earth.

Usually there are three persons to be considered in any new proposition. They are the inventor, his financier, who is also sometimes his promoter, and his lawyer. As a rule, the idea is first brought to the technical executive by letter or in the form of an interview. In the majority of cases, the new proposition is disposed of at this first contact, as most of them are not practical or of any value in the light of the experience of the man in charge of this department. By asking a few well chosen and pertinent questions, the whole matter is often ended as far as the oil company is concerned

If, however, the idea presented is of sufficient importance that the proposition must be investigated, then the technical man must be called in and probably arrangements are made for a demonstration of the process. If the new proposition is in the form of a product, samples may be sent to the central laboratory and there investigated. According to the degree of development of the idea and the scale on which it can be demonstrated, one man, or probably a technical man and several helpers, will be sent to the location of the plant or apparatus to be investigated and a preliminary opinion obtained as to the merits of the proposition.

Making Reports

In reporting an investigation of this nature, the report should be divided into two parts: First, a letter to the head of the technical department or to the person to whom the report is to be made, and second, the report proper covering the results of the preliminary investigation. The letter should be brief and should merely state name of the process, date of investigation, those present, with their connections, and the location of the plant where the investigation took place. Attached to the letter should be the report of the investigation. The report may well be divided into the seven following classes of information as regards the process:

1. Historical.
2. The process in its present development.
3. Record of the demonstration made by the investigator.
4. Commercial application of the process.
5. Comparison with other known similar processes.
6. Advantages and disadvantages of the process.
7. The investigator's personal remarks on the process, and his reasons for recommending its adoption or rejection.

The following may serve as an amplified outline of a report of a cracking process. This outline really covers the questions, answers to which should be secured, so that the technical head will have as much information on which to base judgment as to whether or not the preliminary contact with the process should be followed up and a complete demonstration made:

Historical (1)

1. Who was the inventor, when did he first get his idea and how did he conceive it?
2. The inventor's present development of the process, where did he do his experiments and to what extent did he develop his ideas (laboratory or commercial scale).
3. How did the inventor finance the development of his invention? Did the inventor form a company to develop or exploit the process? If so, give the name of the company, his present contract with it, the men interested, the location of the main office and in what state the company is incorporated? (Why).
4. What has the company done to develop the process commercially? Who owns it now? Is the process patented? If so, who owns the patent? Is it in litigation? If so, with whom? Get the number of the patent and the number of patents and names of the patentees with whom there is litigation.
5. Will the company or inventor sell the process outright, or will they allow the use of the process on a royalty basis?
6. Who else has investigated the process? What did they think of it, and if possible, get a copy of their report.
7. Is the process being used by anyone else? If so, what royalty do they pay and what are the terms of their contract with the owners of the process?

Present Development (2)

1. Is the process as practiced at present in the laboratory, semicommercial or commercial state?
2. Give a description of the apparatus used, with blue print or photostat, if possible. Obtain also photographs and an operating flow sheet.

(a) Still shell, size, material, etc.
(b) Type of tubes, length, size and material.
(c) Mechanical agitator, if any—type, speed of agitation and type of drive.
(d) Size and type of pumps, steam boilers, etc.
(e) Vapor line and reflux towers.
(f) Type of condenser, whether under pressure or without.
(g) Casinghead plant, or absorbent towers for noncondensible gases.

3. General operation: (a) Whether a continuous or batch process; (b) stock charged, gravity, initial and other general tests; (c) the capacity of the still, rate of charging per hour or minute, feed pump and control; (d) pressure used and how controlled; (e) preheaters and forewarmers; (f) fire box, type and construction and insulation; (g) circulation from bulk supply; type of artifical circulator; (h) recycling; (i) control of run and taking off vapors; (j) condenser and run down tanks; (k) total heating surface of still or tubes (gals. of distillation per hour per sq. ft. of heating surface); (l) fuel used, whether gas, coal or oil, and quantity burned per hour and per gallon of distillate made; (m) any special features, such as catalysts, special methods of handling the carbon problem or any special feature of construction.

Demonstration Run (3)

1. Condition under which run was made: (a) Condition of the plant; (b) superintendent and helpers; (c) oil stock used with complete tests of same; (d) whether run was made continuously or batch? (e) length of run, whether in one period or in shifts? (f) data to be taken during the run; (g) personal checking up of quantities of raw material handled, capacity of tanks and feeding rates; (h) provide some method for checking up fuel consumption.
2. Log of run. Time, important data taken, readings of instrument, and remarks or observations made.
3. Yields: (a) Grade; (b) volume in gallons or bbls.; (c) weight in pounds; (d) percentage by volume based on distillate; (e) percentage by volume based on original stock. (In this run shall be included each finished product made, the amount of coke produced and the loss in fixed gases.)
4. Quality of products: (a) Comparison with original stock (fractional distillations, physical and chemical tests and graphs); (b) do the products need rerunning or refining?
5. Rerunning of products from the still: (a) Operation; (b) apparatus; (c) length of the log (duration of run in hours); (d) yield of products.
6. Refining of products: (a) method; (b) apparatus; (c) yields and losses in treating. Special problems.
7. Fuel efficiency: (a) Total fuel burned; (b) pounds of fuel consumed per gallon of oil run through process, of distillate made, and pounds of fuer per gallon of gasoline made; (c) efficiency of fire box; (d) temperature of waste fuel gases (analysis of these gases if possible); (e) preheaters or forewarmers and gain in temperature from their use; (f) temperature of residual oil drawn off or circulating through exchangers.
8. Efficiency of process: (a) Capacity of units—gallons or barrels; (b) rate of charging in gallons per hour; (c) barrels of distillate per sq. ft. heating surface; (d) average rate of distillation, rate percentage per hour based on the charging capacity of the still.
9. Cost balance: (a) Cost of raw material used per ton or per barrel oil run; (b) value of products made; (c)

(Continued on Page 128)

REQUIREMENTS OF TECHNICAL STAFF

The chief executive officer of a refining company expects from his technical staff information along four definite lines which may be expressed as follows:

First, he wishes to know whether or not his present equipment and methods of operating are yielding products of full quality and in the amounts actually present in his charging stocks.

Second, whether the individual operations in his plant are being carried out in the quickest, cheapest and most efficient manner.

Third, whether new processes, apparatus or products offered him by outsiders have real merit and should be investigated, and

Fourth, it must be possible for him to have available the patent history of every process he is using or is being developed in his organization, as well as the same information for any piece of apparatus now in operation or which may be contemplated, or of any product which he is now producing or intends to produce.

In order that these four prime requisites may be taken care of, the technical staff may be divided into two main groups, one of which will deal with all matters relating to actual or proposed refinery practice, and the other with the outside investigations and patent searches.

As a center for operations of the above-mentioned staff, a general laboratory should be provided equipped with all modern apparatus and having a personnel of competent oil inspectors and chemists. This group is charged with responsibility for the quality of all materials or products bought or sold by the company. Besides this routine work, men with special training should be available for detail work in any field in which the company may have an interest. The chief functions of this unit are to keep close watch on the quality of all raw and finished products in the refinery and to furnish analytical data on materials from all sources. Of almost equal importance is the manner of routine examination of competitive products and the recognition of all points of merit displayed by them.

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THE OLDS PRESS
215 East Third
Tulsa, Oklahoma

The Oil and Gas Journal,
Want Ad Department,
Tulsa, Oklahoma.

Dear Sirs:

We are writing this letter as we believe you will be interested in these facts.

During January this year we have had requests for our catalog from 286 men or firms in 129 cities in 24 states and Canada.

Many referred to our ad in your Journal and as it is the only ad run thru this period perhaps all should be credited to this source.

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Yours truly,

THE OLDS PRESS,
Ben H. Olds.

Fairly Active Market in Chicago

Bulk of Spot Demand for U. S. Motor Gasoline. Kerosene Active. Light Demand for Furnace Oil. Fuel Orders Larger

By J. B. Waldo

CHICAGO, Mar. 5.—There was a fairly active spot demand for gasoline in this market today, although very unfavorable road conditions in parts of the territory are holding the orders from these dealers. All refiners were quoting 6¼ cents for the U. S. Motor grade except one refiner who quoted 6¾ cents but is well sold up for the first half of March at least. Prices on the higher gravities were unchanged. The bulk of the spot demand is for the U. S Motor gasoline with other grades not selling in considerable quantities.

Kerosene was firmly held and there was an active demand from dealers and some of the marketers were also buying. In the southern part of the territory spring plowing had begun but was stopped for a little while by rains, but will be resumed in a few days with bright weather. As yet tractors have not been generally used but some are at work, usually burning gasoline for fuel. The bottom price for 41-43 kerosene was 4¼ cents to dealers and several refiners were holding for an eighth to a quarter higher.

Furnace Oils Slow

There was only a light demand of occasional cars for the furnace oil group. Both distillates and zero gas oils were easier to buy, although prices were nominally unchanged. Straightrun gas oil was inquired for but actual sales were not brisk, the low price for the product being 2½ cents. Offers at this price have been rejected by buyers, in several instances the buyers stating that they could buy for less but some, if not most, of these sales have yet to be covered and so far as is known no refiner is selling regularly at less than this price.

The inquiries for fuel oils are numerous and for a larger quantity. In a number of cases plants have increased their operations and their buyers are now taking in two or three times as much oil at a purchase as they have been doing until very recently. The demand is very largely for the zero oils in the gravities below 24-26 degrees. Offerings of these heavy zero oils are light and prices well sustained. Salesmen in the city from various parts of the territory agree that there has been very little buying of gasoline for storage and state that it is too early for the average dealer to anticipate his requirements. In the southern part of the territory in this State, south of Springfield, the frost is well out of the ground but travelers say road conditions were never worse and only the paved highways are available for motorists.

Gasoline Market Improves

In a general way the gasoline market last week made a steady if slow progress to better conditions. The improvement was not wholly a matter of price. There was a better tone to the whole situation, supplies, demand and prices. Actual sales to March 1 from the beginning of the year are reported by some of the oil companies to show a very substantial gain over the same months in 1927. A little of this gain in the territory east of the Mississippi River may be due to the increase in freight rates on gasoline which became effective March 2. To most of the points in the southern part of this territory the rates increase on an average 2½ cents per 100 pounds and many of the larger dealers in this part of the territory ordered a few extra cars to save the increase in freight costs. But as has been reported from week to week, there has been an encouraging increase in the gallonage of many distributors. They believe that this increase is due to greater use of the autos and to the larger number of heavy vehicles now operating. Supplies of gasoline on hand are nowhere as large, at least as compared with the increased volume of consumption. The annual report of the Standard Oil Co. of Indiana shows a material decrease in the quantity of merchandise on hand. The greater part of this merchandise consisted of gasoline, it was stated, and even allowing for the difference in the price at the date of this annual inventory and that made a year ago at the same time with which comparison is made there must be a considerable shrinkage in volume of gasoline as well as in the monetary value of the merchandise inventoried.

Some refiners report that they have increased their runs with the beginning of last week or on March 1, but these have large distribution of their own for which they had to provide and in some instances the statement was made that in spite of the increased runs, the refineries were sold ahead, in fact they had to increase their runs to meet the demand for shipments. This is a healthy state and the only question as to the good judgment in increasing runs thus early in the season would be if the gasoline cost them more to refine than the price at which an equally good product could be bought in the refinery market.

Price Situation

The price situation was not quite as good as was hoped for. Early in the week there were considerable offerings of U. S. Motor gasoline at 6 cents for immediate acceptance and shipping instructions and some gasoline was offered for resale at 6 cents over the first half of March and in a limited quantity for the entire month but if the offerings were confined to those buying to sell again it would mean that their price should not be less than 6¼ cents. It was evident that this price of 6¼ cents would be definitely established as soon as the residue of the gasoline bought early in February at a price that permitted the naming of a lower price, and of which there cannot be any quantity remaining, is closed out.

One large refiner late last week advanced its price for open quotations to 6¾ cents. Others advanced their price to 6¼ cents and at the close of the week there was practically none quoting 6⅛ cents. The tendency was towards still higher prices for the U. S. Motor grade and there seems to be no reason why they should not prevail if the refiners will not anticipate the improved conditions too rapidly.

The increase in the consumption is seasonable and somewhat larger than a year ago but there is no justification in present conditions for increased production by refiners who are not prepared to stock their surplus until the time of considerably heavier buying is due, which period may begin the latter part of April if the season is early but may be delayed over much of the territory until the last of May by a backward spring. Many of the experienced distributors will tell any inquirer that the really good demand does not begin until late in June when the weather conditions make driving after the evening meal practical and pleasant.

The nearer the production of gasoline is brought to the actual daily consumption the more practical it will be to secure returns that will show a profit to the refiner. It requires only a small surplus from the total production, which surplus has to be sold at forced sale, to depress the entire price range under present methods of marketing. If the gasoline industry shows a better condition in 1928 than it did in 1927 it will be because the refiners and the distributors unite to work for a fair profit instead of making present volume and a possible future profit their aim.

Demand Increasing

The movement of gasoline last week showed that there was a gradually increasing demand. Sales were larger and there was a better feeling. The one thing that will do most to hold back this movement would be for some refiner or group of refiners to allow themselves to be placed in a position where they would have to go to the buyer and ask him to buy, in other words to be forced to unload a surplus piled up before the time when the demand required such increased supplies. The demand for the higher tests was not active last week and some careful distributors who watch their sales and try to analyze conditions state that in their own business the tendency seems to be at least with them to sell more of the antiknock fuels and less of the higher tests.

One large distributor with over a hundred bulk stations stated last week that based on present business it looked as if within a short time the bulk of their gasoline business would be the U. S. Motor grade and their antiknock gasoline and there would be so little demand for the higher tests that they would cease to handle them. He did not give this as the decision of his organization but as the present direction of the change in demand which might be only partial or even temporary and possibly because of the good service their antiknock gasoline was giving their customers. The price average for last week was 6¼ cents for the U. S. Motor grade, 6¼ cents for the 60-62 437, 6½ cents for the 60-62 400 and 7 cents for the 64-66 375 endpoint material.

Refineries Busy

The large local refineries and those located in the vicinity including all those in the States of Illinois and Indiana are busy. They may not be running quite to the very limit of their capacity but they are very nearly at that point. This is a condition that has been brought about by the freight differentials, the improvement in refining practices and crude supplies. The freight differentials have been somewhat changed in some parts of the territory by the new tariffs that went into effect on March 2. In the southern part of this State there is an advance of an average of 2½ cents a hundred pounds. The advance in delivered price from Group 3, to these points favors the nearby plants. But it is not alone the refiners in the States named who are taking advantage of the differentials to secure business in the central territory. Refiners near New Orleans and northern Louisiana favored by rates into parts of the territory, quote prices which with the freight added are just a little lower than the Group 3 refinery market. The Kentucky refineries have their territory in which they have a decided advantage and refineries in western Pennsylvania have a large business in the northern part of Ohio. The prevailing prices in Ohio last week figured around 5½ cents Group 3 which shows that there was considerable competition for the business of the Ohio dealers between sellers at differential points. Much the same condition prevails in Michigan where the central refiners compete with those at northern and central Ohio points and to some extent with refiners in the South who have a great advantage in the existing rates which practically forces the dealers in the southeastern part of the State at present to secured supplies from one of these differential points. Natural gasoline was quiet and unchanged as to the higher grades but the C grade was quoted at lower prices.

Kerosene Demand Better

There was some improvement in the kerosene demand last week taking the market as a whole. Some of the sellers stated that they could see no difference over preceding weeks but others showed records of increased sales and said that their customers were showing some inclination to stock up for their spring requirements. In most offices the business was stated to be almost entirely in the 41-43 gravity but one large refiner's sales were about equally divided between that gravity and the 42-44 grade. He could give no reason for this as his 41-43 gravity had a low flash and is a fine product. Many of the refiners are holding for 4¼ cents and occasionally one is asking 4⅜ cents. One of the larger concerns advanced its price last week to 4¼ cents from 4⅛ cents. Last year at about this time or a little latter the kerosene market made a strong advance which was held until May and some are looking for a corresponding movement this year and the present strength of the market is largely due to the fact that under usual conditions this is the season when the best demand of the year is approaching. Some years there is some improvement in the demand for kerosene right after July 1, at the small grain harvest season and another period of larger demand late in the fall for the plowing but these are of minor importance as compared with the spring tractor demand.

Distillates

Distillates have little interest at present as the buying is for a limited period and confined to actual requirements which are not important as most of the distributors are supplied with about all the distillate that they are liable to need. In fact there is a good deal of complaint regarding failure to take out the distillate contracted for early in the season. The demand is for occasional cars for immediate shipment and the price remains at 3¼ cents for a 38-40 straw product. There is very little demand for the 36-38 as the flash is in most cases too high.

Gas oils of the U.G.I. variety have held their own and are firmly quoted at the sources of supply. Some believe that there will be some extensive buying from refiners for cracking stock and it is this prospective rather than the present demand that is causing the strength in the market here. The local demand is not active and the gas companies, even the smaller ones who buy for brief periods, have not been buying recently. Many have supplied their March requirements and from this time on will need less oil. The demand for zero gas oils is less active and prices have been less strong. The straw zero oil has declined and is now quoted by many sellers at only a slight premium above the zero dark gas oil. The market as a whole on the zero oils is one-eighth of a cent lower and the tendency is for those having supplies to push their sales of the cracked product. There was only a limited activity in these zero oils. Usually after the beginning of March there is little or no really cold weather and no prolonged spells are to be expected. Those distributors who handle a full line of products are from now on more interested in gasoline than in furnace oils. With the exclusive fuel oil distributors their demands will shortly be from the users of oil for power rather than for heating and the latter will not be willing to pay a premium for zero oils. At the same time some refiners are increasing their runs and starting up their plants and they will shortly have more straightrun oil if they do not crack the material and

more cracked gas oil if they do. If the market suits their views, the gas companies will be the next large buyers of gas oils but they will want the U.G.I. specifications.

Fuel Oil Demand Better

The demand for fuel oil showed quite an improvement last week. There was really an active market for fuel oil from industrial users, not for large quantities but the number of orders was sufficient to make a good total. Supplies continue to be closely held at full prices and while an occasional good purchase is reported at a little less than the quoted market any short sales are covered with difficulty and at little if any profit. As a whole the buyers seem willing to buy for their immediate needs at the market, that is they pay the price not without grumbling, but they are paying the market price. For the heavy oils this ranges from 80 to 85 cents and for a 24-26 gravity 85 to 90 cents with an ordinary cold test. There is less demand right now for the zero oils and this is largely because users of these oils have supplied themselves for at least a part of their requirements. Many of the present purchases are made to cover the month of March. Industrial users quite generally are rather uncertain as to the future of business some saying that while their present output is good they are not entering enough new business to assure them that they will be able to run at their present activity for more than 60 days so that they avoid committing themselves to purchases beyond that time. Quite a number of 25-car orders were reported last week for delivery over March and a few of larger amount with many 5 and 10-car orders.

Lub Market Active

The lubricating oil market last week was quite active. Deliveries on contracts in tank car lots were good and this movement from the refiners to the compounders and distributors will make itself felt in the other branches of the business. Deliveries of motor oils to distributors which have been going on for some weeks were more active. Most of these deliveries are with a spring dating. Refiners of lubricating oils from Pennsylvania grade crude are offering their bright stocks at very low prices compared with recent quotations and with other products. They seem to have too great a supply of bright stocks and their supply of neutrals is less burdensome judging from the fact that they are holding their neutrals at higher prices than their bright stocks. Steam refined cylinder stocks are also offered freely at low prices from the East. There were several inquiries from exporting concerns in the market last week and much bustling around for the business. The industrial demand continues to be fair, just a fair consuming demand for practically all industrial oils and specialties.

Tank Wagon Unchanged

There has been no general change in the tank wagon price scale over the territory. There were numerous local adjustments made last week and all of these were in the nature of a restoration of normal prices in localities where the rates had been cut for some reason or other. These adjustments were chiefly in gasoline but at several points in the territory changes upward were made in kerosene prices. More of these adjustments might have been made had it not been for one oil company which refused to advance its prices until the Standard had changed its tickets claiming that they had not dropped until after their large competitor and that they would follow the Standard up as they had followed it down but never precede it. The tank wagon scale is now in good shape and improving daily and by the time the gasoline season opens it should be more nearly normal over the entire territory than it has been for years. The problem is to keep it so. Whenever the demand overtakes the supply of gasoline either through a decrease in the supply or an increase in the demand there will be higher refinery markets, a narrower margin and more stable conditions in the distributing end of the industry. It is hoped that there will be at least an approach to if not a full realization of this condition during the present season. It is too much to expect that the demand will increase much more rapidly than it has been doing for several years past.

East Correcting Market Conditions

Advance of One-Quarter Cent in Tank-Car Prices. Believed Now That Improvement Has Definitely Begun

NEW YORK, Mar. 5.—A move on the part of major distributors to correct local market conditions in gasoline sales, coupled with an advance of one-quarter cent in the tank car prices, featured the market developments in the Atlantic Seaboard area during the past week. The action is interpreted in marketing circles as an indication that conditions have definitely improved with additional advances to be expected in the near future.

Starting back in the summer months when the gasoline market generally was demoralized the oil companies have had many local "price wars" to contend with. Prices at these points were often from 1 to 3 cents under the general market, although the latter was at the lowest point in several years. Attempts have been made at various times to correct these local conditions, but for the most part they have been unsuccessful.

It is believed that conditions are now sufficiently improved in the oil industry to support these local advances. The fact that tank prices at refineries were advanced as well as the retail prices justifies this conclusion. The demand so far this month has been exceptionally heavy and the coastal refiners anticipate an increasing demand until the maximum is reached in the summer months. Although the major distributors are not predicting any state-wide advances in retail gasoline prices, it is believed that will be the next development in the improved gasoline situation.

The Standard Oil Co of New York has led in the advancement of gasoline prices at local points. The price at Boston has been advanced to 19 cents and other scattered points in the New England and Atlantic Seaboard points have returned to normal price levels.

Gasoline Advanced

The Sinclair Refining Co. led in the tank car advance at refineries. This company made a general advance of one-quarter cent in its prices not only at coastal plants but also in the Middle West and Mid-Continent where the company also operates refineries. Its price in tank car lots at its terminals in this territory is now 8½ cents.

The Sinclair advance was promptly met by the Standard Oil Co. of New Jersey and several of the other major refiners and distributors in this territory. To some of these companies the new price meant an advance of one-half cent as they had been selling U. S. Motor gasoline in tank car lots at 8 cents. There is some material available at 8 and 8¼ cents, but a majority of the companies are asking 8½ cents.

It is believed that the improved Mid-Continent and Gulf Coast gasoline market will enable the local refiners to maintain the new price. The Mid-Continent price has shown a steady improvement since late in January and is now generally quoted from 6¼ to 6½ cents. Late in 1927 U. S. Motor gasoline was available in that territory as low as 5 cents a gallon. With this price prevailing it was impossible to advance the eastern market.

Expect Further Improvement

According to the sellers, several conditions point to continued improvement in the gasoline situation Gasoline stocks are said to be relatively low. With a general expectation that gasoline prices would continue low during the summer of 1928, refiners and the major distributors with terminal facilities have not carried on the winter storage programs as they have in past years. Fearing a continued overproduction of crude oil, they could not see any profit in a storage program so they have in many cases pursued a policy of keeping their current production moving to their customers.

It is now conceded that the crude oil situation is showing gradual improvement. There will be plenty of crude oil available to coastal refiners during 1928 but the drop in light oil production should tighten this situation to the extent that higher gasoline prices will be necessary. All indications now point to a heavy jobber demand in this section during the spring months. The winter demand so far has shown a satisfactory increase over the same period last year.

Kerosene prices were firm during the past week. Both the export and domestic demand is steady, the supply apparently being about equal to the requirements. Most of the distributors feel that this product is in a strong position and should be able to take advantage of any general improvement in the general oil situation.

Although the peak of the furnace oil demand is over for this season, the distribution continues steady. The demand for this product will not have any marked seasonable slump until the end of this month. Prices are unchanged.

Bunker Oil

Bunker oil prices are unchanged at $1.35 per barrel for immediate delivery. The sellers ever since the collapse in this market have been actively soliciting new business and actual consumption is conceded to have materially increased at the lower prices. Some of the companies are conducting advertising campaigns to increase their sales with personal solicitation of prospective users.

At present prices, bunker oil presents a very attractive fuel proposition when compared with coal. The large production of low gravity West Texas and Venezuela crude oil in addition to the California and Mexican surplus gives a large supply. The trade feels that prices are at bottom. The movement of Diesel oil continued steady at $2 per barrel.

Lubricating Oils

There were no developments of special interest in lubricating oils. The movement so far as volume is concerned is steady but there is no disposition to advance prices. The bright stock demand was especially active during the past week.

Petroleum Wax

Developments continue to point to higher wax prices. Exporters are active both in the spot market and in long time contracts. There were no changes in the spot prices, but refiners were asking higher prices on material for delivery over the next few weeks.

GASOLINE SITUATION IS BETTER IN EAST

OIL CITY, Pa., March 3.—The gasoline situation in the Pennsylvania refined market is a trifle better than it was a week ago. There has been a little increase in the demand and the price is stronger largely because of the withdrawal on the part of some of the larger companies of the low prices which they had been quoting. Kerosene is also a little improved. Fuel oil is improved and demand has shown an increase. Neutrals are unchanged with a reasonably good market. Cylinder stocks are unchanged with a fair demand. Wax is slightly weaker in demand. Motor oils in the Pennsylvania market picked up considerably during the week. There has been a slow market earlier in the year but carload orders began coming into the Pennsylvania market during the past week in good numbers.

KANSAS FIELDS

(Continued from Page 44)

Schwab, SW cor. NE SE, Section 25-22-12, is dry and abandoned at 2,232 feet. No. 8 Schwab, NW cor. SE NE, Section 25-22-12, is making 75 bbls. from sand at 1,672-1,724 feet. Darby Petroleum Corp.'s No. 6 Schwab, SW cor. NW, Section 30-22-13, was completed for 350 bbls. in sand at 1,694-1,759 feet after a shot of 340 quarts. Powell and others' No 1 Smith, SW cor. NW, Section 8-24-11, has been abandoned at 2,135 feet. Lassen and others' No. 3 Wilkerson, SE cor. SW, Section 6-25-9, was shot with 100 quarts in sand at 2,194-2,216 feet and made 100 bbls. Empire Oil & Refining Co.'s No. 2 Kolb, CNL NW NE, Section 15-25-13, is making 50 bbls. after shooting 40 quarts in sand at 1,424-47 feet.

McPherson County

The Prairie Oil & Gas Co. made location for No. 1 Anderson, C NE NE, Section 31-18-2w.

Russell County

Streeter & Stearns' No. 1 Mermis, SW cor. NW SW, Section 33-13-15w, has been completed for 1,000 bbls. in sand at 3,297-3,317 feet.

Marion County

Braden, McClure and others' rig is up for No. 1 Folks, NW cor. Section 23-17-4, Lost Springs Pool. Lariaux and others made location for No. 2 Merilatt, NW cor. SE NW, Section 23-17-4. Location was also made for No. 3 Merilatt, SW cor. SE NW, Section 23-17-4. Deiter & Hoffman made location for No. 1 Fronta, NE cor. Section 21-18-4.

Braden, McClure and others' No. 1 Smith, NE cor. Section 22-17-4, Lost Springs Pool, has been completed for 50 bbls. in sand at 2,373-2,433 feet. Ramsey and others' No. 1 Bolby, SW cor. NE NE NE, Section 22-17-4, made 400 bbls. from sand at 2,370-2,429 feet. Phillips Petroleum Co.'s No. 1 Peterson, NE cor. NW SW NW, Section 23-17-4, is making 200 bbls. from chat at 2,349-2,406 feet. The Prairie Oil & Gas Co.'s No. 1 Hartke, SW cor. SE NW, Section 1-18-4, has been abandoned at 2,330 feet.

Shawnee County

McBride & Goens' No. 1 Shirley, NE cor. SW, Section 21-12-14, is dry and abandoned at 2,469 feet.

Sumner County

Roxana Petroleum Corp.'s No. 4-A Emerich, NW cor. EW SE, Section 14-32-2, made a 35-bbl. well after a shot of 60 quarts in sand at 1,202-17 feet. Palmer and Barnsdall Oil Co.'s No. 2 Wenrich, NW cor. NE NE NW, Section 23-32-2, Oxford Pool, made 700 bbls. from sand at 1,992-2,013 feet.

Woodson County

Spencer & Rainey made location for No. 1 Kimball, SE cor. NE, Section 32-24-14.

SHELL PIPE LINE REPORT

The Shell Pipe Line Co.'s runs of Oklahoma and Kansas oil in January were 2,299,738 bbls., a daily average of 74,185 bbls. while the shipments were 2,321,651 bbls., a daily average of 74,892 bbls.

PRAIRIE P. L. SHIPMENTS

The Prairie Pipe Line Co.'s crude oil shipments and deliveries in February were 5,006,573.20 bbls., a daily average of 172,640 bbls. per day. Shipments in January were 5,394,759 bbls., a daily average of 174,025 bbls. In December shipments averaged 172,413 bbls., and in November, 182,002 bbls. per day.

TECHNICAL CONTROL OF PETROLEUM REFINERIES

(Continued from Page 123)

cost of raw material charged to still or used up; (d) value of products made or of unused material left over; (e) value of fuel consumed; (f) labor cost; (g) total investment in plant; (h) maintenance 10 per cent of investment; (i) interest on investment; (j) allow for depreciation at proper rate; (k) cost of steam and electricity; (l) total cost of producing .. gallons of gasoline; (m) total value of products made; (n) net profits per day or year; (o) barrels of gasoline per year per dollar invested; (p) profit per year per dollar invested. Note: If there are several runs, tabulate parallel and average ,example:

Item Run 1 Run 2 Run 3 Average

Commercial Application of Process (4)

1. If on a laboratory scale, how does inventor propose to operate the process commercially?
2. What is the largest size of units possible?
3. Will the plant be built in separate units or batteries?
4. Will it be operated as a continuous process or intermittently?
5. The total investment will be so much. You can charge so many barrels per day and the yield will be so much of such and such a product.
6. Do the products need rerunning or refining in order to make them marketable?

Comparison With Similar Processes (5)

1. Chemical process.
2. Cracking process.
3. Treating process.

Note: Compare the process with other known processes with respect to investment, size and yields, fuel, economy, yield of gasoline per heating surface, cost per gallon, labor operation, safety from fire and explosion, rate of distillation and quality of products.

Advantages and Disadvantages (6)

1. Large or small capacity of plants.
2. High or low yields.
3. Obsolescence.
4. Fuel economy.
5. Quality of products.
6. Safety.
7. Depreciation and maintenance.
8. Simplicity of construction and operation.
9. Amount of labor needed for operation.
10. Do you need special castings or equipment or can the plant be built from standard parts?
11. Elasticity of the process or range of oils that can be used as stock.
12. Range of products obtained.
13. Is the loss in fixed gases large or small, and what is the nature of these gases?
14. Is there a large loss in coke and does the formation of carbon place difficulties in the way of operation?

Reporting Results

The first investigation of a process or contact with a new idea is practically an effort to obtain as much reliable information as possible regarding the proposition submitted. A consideration of this preliminary report then puts the technical head of an oil company in a position where he can decide whether or not the proposition is worthy of further consideration. In case this conclusion is reached, arrangements are usually made for a second demonstration. This should be on a semicommercial scale or even commercial scale, if possible.

Enough men should be sent under some head technical man familiar with this line of work to take over the proposition and operate it over a long period of time, with the company's own men operating on their own oil and keeping their own data. No run should be shorter than 24 hours. It is not necessary to go into details as to the method of conducting such a test. One would, of course, obtain not only the information furnished in the preliminary report but carry the figures far enough so that there will be complete yield, fuel, cost, and other figures available for final study.

The technical man should not, however, overlook one important fact in conducting such a test in another man's plant. We must take into consideration the fact that the average inventor or party developing a new process has not the varied experience, or, we might better say, the specialized experience in oil refining that he has, and usually one must bear in mind that with the facilities of his own company and their experience at his demand, considerable improvement could be made in the construction and operation of the plant, and probably more efficient heating means, condensing means, auxiliary equipment could be employed.

The investigator must always report the process as it actually is and the products as they are actually produced, but it is a good thing to also advise his chief as to the possibilities of the process and what one experienced in the oil industry could make out of it. As mentioned above, inventors often present processes to an oil company, but due to circumstances, usually financial, they are not in a position to build a plant or to make any demonstrations. In such a case, the ideas, if they look worthy of consideration, are developed on a sort of co-operative basis by the inventor and the oil company.

Prior Art Searches

As mentioned several times earlier in this paper, one of the most important phases of technical control in the oil industry and one that is becoming every day more and more important is the subject of prior art searches. These searches must be conducted almost continuously for either one of two purposes. First, the prior art should be searched thoroughly to see what patent protection, if any, can be given new ideas which are conceived in the research, process development department, operating, or any other part of the organization. These ideas may be along the line of a new process, may cover some new piece of equipment or apparatus, or may be a new product or composition.

Second, it is always advisable to know from a study of the prior art if one is within his rights in operating a regular refinery process, or whether he is liable to litigation for infringing somebody's patented process. The oil industry has moved in cycles and has seen many changes in the manner of operating and in just what at any particular time is considered the important product. This has led to the rather complicated patent situation at present. It is not within the scope of this paper to discuss this particular phase of the subject further.

Due to the difference in purposes of the two above-mentioned kinds of prior art searches, the technique of carrying out the search is a little different in each case. When one is studying the prior art, it is best to make the search as systematic as possible and to keep the results of the search in a definitely classified manner so that they are readily available to patent attorneys or such others as may have to study or refer to them later. In making what is known as a prior art search to see what protection can be given a new idea, the entire field of that particular idea must be searched, but in making the second class of search, where one simply wishes to see whether or not the processes which he is already operating are old art, the search is usually made to find instances in the prior art which anticipate certain definite ways of operating a process or constructing a piece of apparatus in which one wishes to carry out a process. The writers have found the following a very convenient system for conducting a prior art search and for reporting it in a classified readily available manner.

Two Divisions

The search proper may be divided into two main parts.

Part 1, covering material searched or studied, and

Part 2, containing references found pertinent to the subject on which prior art is desired.

It is well to divide the material searched into section, such as the following: Section A—Books; Section B—Periodicals; Section C—Patents; Section D—Miscellaneous publications, such as dissertations, bulletins, brochures and such as are not books or regular publications; and Section E—Reports, affidavits, and other unpublished matter.

In each one of these sections the material searched can be entered and given numbers so that they can be referred to later, and also for the purpose of cross entries which are made in the second part of the search under "Reference Found." In other words, each book, perodical or patent studied will have a symbol and this can be used for identification in the actual references found.

It is very essential in a search of this nature that any literature source studied be entered in its proper section, giving enough detail on the reference that it can be readily located again, in case those receiving the results of the search wish to study the original reference. In the case of a general search on a given subject for the purpose of obtaining protection for an idea, it is often sufficient to merely make an abstract of the literature reference and enter it under the proper section of material searched, giving it its proper item under that section, but in case a search of the second class on specified points is conducted, it is better to use the two-part search idea, the first part being the sections of material searched and the second part a list of the classes under which the references found are divided.

In this case the abstract prepared from a study of the original reference and which is entered under the proper section of material searched contains at the end a list of class references, in case there are any, together with the item number in that class. The purpose of classification is that where a pertinent reference is found it can be entered and elaborated under the proper class so that at the end of a search one studying the subject on which the search was made can find all the references pertaining to any particular angle of the subject abstracted and listed in one place, with each item containing a cross reference back to the original source from which the information was obtained.

Searches of the nature outlined above should be carried out by some technical man familiar with the standard processes carried on in oil refineries and with research work in the oil industry. After he has completed his search the results should be turned over to regular patent attorneys as they can best judge of the legal aspects of the matter.

One advantage of carrying out a search along the lines described above is that the search is accumulative and new items of material searched and references found can be incorporated at will. If the search is extensive and covers the literature both of the English and foreign languages and all of the patents as well, it may become quite a volume, in which case it is advisable to prepare an author index. Each entry should be given the search symbol under material searched so that the reference can be immediately found if desired.

Conclusion

In considering the operations of the technical staff for a modern unit in the petroleum industry, we have covered a field that requires the annual outlay of a large sum of money. The natural question here is, "Does this expenditure justify itself?" The returns from such an investment appear in two forms, one tangible and the other intangible. Bogey barrel workups induce both. Routine operators in any kind of plant are content with current yields as long as stocks do not cause trouble in the specific operations with which they are concerned. A stillman wants throughput; a treater, freedom from trouble at the agitators and a wax plant good pressable distillate.

When no laboratory control whatever is maintained over operations, each process yield is considered satisfactory in comparison with previous operations. If, however, operators know that control breakups of stocks for full potential yields are to be made on the exact materials they handle each month, the natural tendency will be to watch details of operation, quality of products and yields closely to avoid censure from the superintendent. The value here is intangible, but nevertheless, it represents thousands of dollars per year in reduced refinery costs and in ultimate earnings.

In another direction, bogey barrel workups have a substantial value. A superintendent cannot demand greater yields per barrel of crude run from his operators unless he can lay before them positive evidence that the crude actually contains those added quantities. When breakups are made on specific stocks charged to stills and results are set up against refinery yield statements, defects in commercial operations are discovered. This kindles the interest of the formen on the job and spurs them on to get the highest yield and quality possible from the materials they handle. In many cases yields lost in primary operations can be recovered in secondary ones, but this means a waste of a certain amount of fuel and a loss in still capacity, both of which considerations run up to the overall operating costs.

The ideal operation is to separate all the desirable products in continuous one-pass operations and the nearest approach possible to this ideal is the prime object of bogey barrel control. Practically complete separation of test distillates in one-pass operations as against poor fractionation and secondary cleanup may mean as much as 5 cents per barrel of crude run in savings. There can be no question but that such a saving justifies all the expense involved. Bogey barrel runs supply the means for finding out where improvements in yields can be expected and serve as a checkup after better operating conditions have been established.

Many Advantages

Passing to the semicommercial operation with actual or proposed plant processes, this class of work reveals the shortcomings of current equipment and points the way to improvements. Here, individual steps can be followed in minute detail and the degree of refining obtained, closely watched. In many cases, the causes for the failure of end products to meet exacting specifications can be located and the plant equipment modified with a modest outlay of capital. Much more valuable results in this field come from the conception of entirely new ideas for processes or products. These usually originate in efforts to solve some troublesome current problem.

All such matters serve as the basis for patent applications and, in this way, the company is able to build up a reserve of useful practices of potential value, some of which might acquire great worth. This is particularly true at this time when the industry is faced with great quantities of very refractory crude oils. The vigorous following of all suggestions in this field, keeps the staff engaged with problems months or even years ahead of current operating requirements and provides experimental data upon which commercial plants can be constructed. The cost for this service is only a small fraction of the real value possible in the ultimate results.

One hardly needs to point out the importance of having firsthand information on all new processes, apparatus and products offered to the company. The purpose for which an inventor designed a process may not be of immediate interest to the company, but no one can predict when changing conditions might create a demand for it. Unless all promising ideas are followed up systematically and their relations to current or anticipated problems fully known, the company will not be in a position to estimate their possible value and, therefore, will be handicapped in negotiating for the purchase or use of those considered important. Not to be overlooked in this field are the personal contacts company representatives are able to maintain with leaders in kindred lines of business. These contacts throw into relief the prevailing trends in the industry and focus the attention on probable future changes in practice or products. Money spent for this class of work usually does not pay a direct return, but its indirect value is very high.

Protection Against Suits

The patent search division of the activities of a technical staff is virtually a new development and few organizations

have pushed this angle of the question to the limit of its possibilities. The potential value of this class of work has been set forth in that section of the paper devoted to this subject. Its primary value, of course, lies in the protection afforded the company against unwarranted infringement suits.

Notices of infringement will be voluntarily withdrawn in many instances when opposing patent attorneys can be shown the prior art applicable to the particular case at issue. An organization having such information in shape for immediate use has an insurance policy of value all out of proportion to its low cost. Prior art searches also furnish the company with substantial backing in all patent matters it may wish to press on its own account. With such a fund of information to draw upon, patent attorneys can inform themselves on the vital points in any proceeding and advise when patent protection is worth obtaining.

At our present, highly developed stage of refinery practice, it is only natural that many companies should have overlapping patent protection in certain fields and it is of first importance that each should know exactly where it stands in relation to all the others. Attempts to negotiate agreements for the exchange of rights in such a case cannot be carried out with complete success from the view point of any single company unless that company knows the prior art and has the patent history of all matters involved. When settlements for patent infringements such as are frequently awarded by courts are set up aganist the total cost to a company of its patent search work, it will be seen that no investment of company funds can pay greater real dividends.

The proper management of the huge resources entrusted to executives in the oil industry today calls for the exercise of sound judgment on many diversified activities. The successful administration of such a responsible position rests principally upon the possession of accurate information along the three following lines, knowing (1) as far in advance as is humanly possible what the market will be demanding in quality and quantity of petroleum products, (2) what kinds of crude oils are and will be available, (3) what kind of processes will be needed to produce them at a profit. The organizations that maintain full technical staffs for control of all refinery operations will have the information they need and will be able to hold their places in the front line of the industry.

Those that do not, however, will not remain long in the running. The activities of a complete technical staff touch every vital interest of the company and furnish the standards against which the efficiency of all operations are measured. The cost of the service rendered by such a staff is returned over and over again in lower production costs and higher quality of commercial products. To refinery people who have not given serious thought to technical control of refinery operations, our parting word is to go home and at once apply as much as your resources will permit and set aside for expansion a reasonable portion of the gains its practice brings to you.

BIG PROGRAM FOR PETROLEUM GEOLOGISTS

(Continued from Page 31)

11. "An Ancient Shoreline and Its Bearing on the Failure of an Oil Well," by A. J. Tieje.

12. "The Monterey Shale," by G. D. Hanna.

13. "The Geology of the La Panza Quadrangle, San Luis Obispo County, California," by Ralph Arnold and Wayne Loel.

14. "Analysis of Field Evidences Bearing on the Origin and Migration of Oil," by John L. Rich.

15. "Notes on the Stratigraphy of the Weatherford Area, Oklahoma," by Noel Evans.

16. "General Status of the Oil Production, and Consumption and Storage," by Austin Cadle.

17. "Petrologic Analyses of Conglomerates in the Southeastern San Joaquin Valley," by Harold M. Horton.

18. "Tectonics of the Valle Grande of California," by Dr. Bruce L. Clark.

19. "Rock Pressure," by R. Van A. Mills.

20. "Technical Papers and Their Presentation," by Arthur Knapp.

21. "Recently Discovered Salt Domes of East Texas," by B. Coleman Renick.

22. "Notes on the Sedimentary Depo-

C. R. McCOLLOM
Vice Chairman, Convention Committee.

sition of Petroleum," by F. M. Van Tuyl and C. F. Barb.

23. "The Measurement of Flowage Pressures of Sedimentary Rocks and Its Bearing on the Salt Dome Problem," by F. M. Van Tuyl.

24. "Compaction as a Cause of Migration of Petroleum," by R. C. Beckstrom and F. M. Van Tuyl.

Special Railroad Rates

The transcontinental lines have granted special reduced rates for the convention on the identification certificate plan. Diverse routes and stopover privileges, and a 30-day return limit are allowed.

JOSEPH JENSEN
Chairman, Publicity Committee.

Several of the local geological societies throughout the country have arranged for special rail equipment to the coast. The geologists in New York, Washington, D. C., Houston, Fort Worth and Dallas, Tex., Tulsa, Okla., Wichita, Kans., and Denver, Colo., have chartered special cars. Over the southern route it is probable that the Santa Fe will have a special train west of Clovis, N. Mex. Through the Royal Gorge and Salt Lake, the Denver & Rio Grande plans a special west of Pueblo, Colo.

The retiring officers of the association are: President, G. C. Gester, chief geologist, Standard Oil Co. of California, San Francisco; past president, Alex W. McCoy, vice president Marland Oil Co. of Colorado, Ponca City, Okla.; vice president, Luther H. White, director, J. A. Hull Co., Tulsa, Okla.; secretary-treasurer, David Donoghue, director, Texas Pacific Coal & Oil Co., Fort Worth, Tex., and editor, John L. Rich, consulting geologist, Ottawa, Kans.

The past year has been one of unprecedented growth in association membership and activity. The total membership is now about 1,950. Besides the official monthly Bulletin of the A.A.P.G., the organization is publishing this year two books, "The Theory of Continental Drift" and "Structure of Typical American Oil Fields," both special symposiums by Association members.

KANSAS OPERATORS WATCH LOST SPRINGS

(Continued from Page 33)

3,000 acres of leases in this region, and is protected in every direction from the producing wells. The wells in the Florence and Sellers pools have pumped for many years with good results per acre, although like the Lost Springs wells, they had only a limited initial output, and a reasonable flowing life.

List of Wells

The complete list of wells drilled in this township giving their owners, locations, results, sand records and completion dates is given below.

Harwood & Winters' No. 1 Ucker, SW cor. SE SW, Section 2-17-4, chat 2,364-2,449 feet, initial output 25 bbls. daily, completed January 10, 1928.

Harwood & Winters' No. 1 Mott, SE cor. SW, Section 2-17-4, 2,390 feet, dry and abandoned, completed December 20, 1927.

Skow Bros. and others' No. 1 Williams, CNE SW, Section 4-17-4, dry and abandoned 2,620 feet, completed July 20, 1927.

Lindsberg Oil & Gas Co.'s No. 1 Sangren, NW cor. NW, Section 9-17-4, dry and abandoned 3,276 feet, completed February 16, 1918.

Forrester and others' No. 1 Fay, NE cor. SW, Section 12-17-4, dry and abandoned at 2,420 feet, completed March 16, 1921.

Harwood & Winters' No. 1 Cowman, NW cor. SW NW, Section 12-17-4, chat and siliceous lime 2,595-2,602 feet, dry and abandoned, completed June 14, 1927.

Harwood & Winters' No. 1 Smith, NW cor. NE SE, Section 15-17-4, chat 2,385-2,439 feet, good showing of oil; plugged when three strings of tools were lost; completed January 17, 1928.

Prairie Oil & Gas Co.'s No. 1 Mowrer, SE cor. NE, Section 2-7-4, chat 2,383-2,423 feet, initial production 400 bbls. daily, completed June 28, 1927.

Phillips Petroleum Co.'s No. 1 Mowrer, SW cor. NE NE, Section 22-17-4, chat 2,390-2,440 feet, initial production 35 bbls., completed February 22, 1928.

Braden and others' No. 1 Smith, NE cor. NE, Section 22-17-4, chat 2,373-2,433 feet, initial output 55 bbls., completed February 22, 1928.

Phillips Petroleum Co. and Harwood & Winters' No. 1 Wells Rezineck, SW cor. NW, Section 22-17-4, chat 2,373-2,379 feet, and 2,391-97 feet, initial output, 20 bbls., completed November 30, 1926.

Phillips Petroleum Co.'s No. 1 T. Rezineck, NW cor. SW, Section 22-17-4; chat, 2,383-2,409 feet; initial output, 63[illegible] bbls.; completed May 11, 1927.

Phillips Petroleum Co.'s No. 1 Peterson, NW cor. SW NW, Section 23-17-4; chat, 2,349-2,408 feet; initial output, 200 bbls., completed February 22, 1928.

Lariaux and others' Townsite, CSL NW NW, Section 23-17-4; chat, 2,355-2,420 feet; initial output, 200 bbls.; completed February 10, 1928.

Givens and others' No. 1 James, SW cor. NE, Section 31-17-14; dry and abandoned, total depth 2,703 feet; completed February 15, 1928.

Franks and others' No. 1 Houser, NE cor. NE, Section 33-17-4; dry and abandoned 2,683 feet; completed March 22, 1927.

There are now two pipe line systems serving this field, the Sinclair Pipe Line Co. and the Prairie Pipe Line Co. Both systems have built 4-inch lines from the Florence Pools, a distance of 24 miles.

BUREAU OF MINES REPORT SHOWS DECLINE

(Continued from Page 29)

days supply as compared with 37 days' supply on hand the previous month and 67 days' supply on hand a year ago.

Stocks of gas oil and fuel oil decreased materially in January, 1928, as winter consumption continued heavy, but stocks of the other major products—kerosene, lubricants and wax, showed small increases. Exports of these three products increased in January but domestic demand for all was lower.

The refinery data of this report were compiled from schedules of 318 refineries, with an aggregate daily crude oil capacity of 3,059,000 bbls. These refineries operated during January, 1928, at 72 per cent of their recorded capacity as compared with 318 refineries, operating at 79 per cent of their capacity in December, 1927.

In January figure for capacity is based on a new census recently completed, hence is not exactly comparable with that of December, 1927.

The production in the Seminole Field during January, 1928, amounted to 10,419,000 bbls., a daily average of 336,000 bbls. This represents the largest decrease in daily average production of any month since the peak was reached in July, 1927. Completions in the field totaled only 44 as compared with 70 the previous month. Average initial production showed a further decrease, declining from 600 to 500 bbls. Stocks at Seminole on January 31 amounted to 16,864,000 bbls., an increase over the previous month of approximately 1,500,000 bbls.

Production in the Panhandle showed a small decrease, due, undoubtedly, to decrease in activity as evidenced by the decline in number of completions from 23 in December, 1927, to 12 in January, 1928. Production at Seal Beach showed a small decrease and that at Long Beach a small increase. Five wells were completed in the latter field during January, which had the unusually large daily average initial production of 2,200 bbls.

American Oil Men's Association Holding Annual Convention

CHICAGO, Mar. 6.—The morning registration at the annual convention of the American Oil Men's Association was light and it was not until the noon luncheon that the oil men began to gather. The speakers at the luncheon were James A. Gilmore, secretary of the Association, and A. S. Close, its president. The subject of the latter's address was "Profits for 1928 by an Oil Jobber." These talks completed the formal program for the first day.

A large attendance is expected for Wednesday of refiners who were prevented from being present today by the annual meeting of the Western Petroleum Refiners Association at Kansas City. The speakers listed for Wednesday include Frank E. Packard, general and tax attorney for the Standard Oil Co. of Indiana; B. H. Anglin of the Indian Refining Co., and R. S. Williams of the Williams Oil Co., Muncie, Ind.

The election of directors takes place in the morning and the annual dinner in the evening of Wednesday.

KANSAS CUTS OIL TAX

Kansas oil producers will have to pay less tax on their producing wells this year as a result of the meeting of county clerks representing 18 Kansas oil producing counties, held in Wichita at which it was decided to reduce the valuation of oil wells for taxation purposes from $600 a barrel on average daily production to $500.

Brief Items for Petroleum Refiners

Virginia to Obtain Price Information In Gasoline Sales

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., March 3.—The administration of Governor Byrd has won in both the Virginia House and Senate on the gasoline price bills. The Senate passed, 27 to 13, an amended bill which will give the governor the right, under penalty of fine, to exact price information from gasoline companies, and the House, meantime, passed the bill which raises the gasoline tax to 5 cents, from 4½ cents.

While the house wrangled gently over many matters, the Senate stuck to its three-day fight over the governor's right to demand from oil companies their retail and wholesale prices.

Senator B. F. Buchanan, of Smyth, led the fight for the right and declared that there was discrimination and some method should be devised whereby the cause might be found. When the cause is discovered, he said, the remedy will be forthcoming. Gasoline, he said, is 2 cents higher on one side of the Rappahannock River than on the other.

"Would the saving of $3,000,000 to the taxpayers be regarded as a fearful thing by any industry contemplating locating in Virginia?" Senator Buchanan asked. He believed it would work the other way around. He said he could not find where any court had held a similar law unconstitutional.

Just before the vote on the measure was taken Senator Barron offered an amendment to make the same provisions applicable also to foodstuffs, coal, lumber and farm implements. It was voted down amid smiles.

This was the first bill supported by the governor this session that received any opposition at all, and those who did oppose it, including Senator William H. Jeffreys, Jr., said opponents believed the governor was asking for powers not properly executive. The governor, however, was set upon the bill because he has been much exercised over the alleged discrimination against the state in gasoline prices to the amount, it has been stated, of approximately $3,000,000 in the annual $35,000,000 gasoline bill and he is greatly desirous of at least finding out the cause.

The plan is to exact the price information of the companies under the penalty and then make them public, allowing public opinion to assist in the adjustment. The governor contends there is price fixing and discrimination.

DOUBLE CAPACITY OF NEW ORLEANS REFINERY

NEW ORLEANS, La., Mar. 3.—New Orleans Refining Co. is rushing to completion the installation of its new topping plant at Norco, 30 miles north of here, which when completed will be operated exclusively on West Texas crude. The new plant will have a capacity of 10,000 bbls. daily.

New Orleans Refining Co. has been running 10,000 bbls. of West Texas crude daily to fill out the capacity of units, ordinarily devoted to asphalt crudes of Mexico and Venezuela. With the asphalt season coming on these old stills will be needed for crude to meet the increased asphalt demand and the West Texas crude will be handled through the new topping plant.

The new plant will consist of three large pipe stills, together with a large fractionating tower of the latest complex design. It will be ready for operation the latter part of this month.

CANADIAN SUBSIDIARY MARKETER FOR SHELL

By Victor Lauriston

CHATHAM, Ontario, Mar. 3.—Announcement has been made from Ottawa that British interests whose identity has not been divulged have acquired the assets of a big oil company in Mexico for a total consideration of £11,008,776. Incorporation has been secured in Canada under the name of the Canadian Eagle Oil Co., Ltd. The vendors of the property are the Compana Mexicana de Petroleo "El Aguila" (Mexican Eagle Oil Co.) of Mexico City, Mexico. Samuel Goodman Crowell of the law firm of Blake, Lash & Cassels, Toronto, is the president of the Canadian Eagle Oil Co.; but he is acting for unnamed clients.

The incorporation of the Canadian Eagle Oil Co. indicates apparently the intention of the Royal Dutch-Shell to market, through its Canadian subsidiary, a large part of its Venezuelan supply. The Mexican Eagle Oil Co. is a subsidiary of the Royal Dutch-Shell Co. and the Eagle Transport Co. a subsidiary of the Mexican Eagle Oil Co.

Royal Dutch is the chief producer in Venezuela, taking at present 100,000 bbls. daily. With the increases in sight, Royal Dutch will produce 120,000 bbls. daily, Lago 85,000, Gulf 75,000, and miscelleaneous producers, most of them controlled by Royal Dutch, around 30,000.

The Royal Dutch has recently expanded refinery capacity on the island of Curacao to 100,000 bbls. daily. To provide raw material there, as well as for its usual tanker shipments of crude to other countries, its Venezuela takings are to be raised. Mexican Eagle Oil, its subsidiary, will start a new refinery on Aruba about May, which will handle 12,000 bbls. daily. It will get 5,000,000 bbls. annually from Venezuela Oil Concessions, Ltd., also a Royal Dutch subsidiary.

GASOLINE TAX TO PAY FOR ARKANSAS ROADS

SHREVEPORT, La., Mar. 3.—Gasoline is paying for the $52,000,000 worth of modern paved and hard surfaced roads and bridges to be built in Arkansas during the next four years through the 5 cents per gallon tax levied by the last legislature. January gasoline tax collections totaled $310,000.

Payments of less than $1,000 were not listed in a report of collections published February 25 but among the larger companies listed and their payments were the following: Louisiana Oil Refining Corp., $3,718; Root Refineries, Inc., $13,007; Kettle Creek Refining Co., $13,868; Simms Oil Co., $1,960; Magnolia Petroleum Co., $64,875; Gulf Refining Co., $22,990; Barnsdall Refining Co., $8,000; Transcontinental Oil Co. of Arkansas, $3,344; Pierce Petroleum Corp., $2,004; H. H. Cross Co., $5,285; Gay Oil Co., $2,284; The Texas Company, $20,570; Standard Oil Co. of Louisiana, $103,117; Continental Oil Co., $10,717; Marland Refining Co., $11,555; High Test Oil Corp., $1,361 and National Refining Co., $1,378.

REFINERS JOIN I.O.M.A.

CHICAGO, Mar. 3.—The Independent Oil Men of America announce that applications of two refining organizations to join the membership have been favorably acted upon. They are the Crystal Oil Refining Corp of Shreveport, La., and the Bayou State Refining Co., of Houston, La. The latter plant is new and not operating. It will run lubricants exclusively. The other refining members are the Vickers Petroleum Co., the Kanotex Refining Co., the Panhandle Refining Co. and the Omar Refining Co.

ILLINOIS MAY HOLD TAX

CHICAGO, Mar. 5. — There is some doubt whether the State of Illinois will refund the 2-cent gasoline tax collected from distributors since last August. The tax was recently declared unconstitutional by the Supreme Court and it has been assumed the taxes paid would be returned to the oil companies concerned. The state's attorney general during the past week has held that the gasoline tax collected shall be held in the treasury subject to the action of the general assembly which must appropriate this money for state roads. No refunds, it is stated, can be made.

GAS CONTRACT SIGNED FOR SUGAR CREEK PLANT

The Standard Oil Co of Indiana has signed a contract with the Kansas City Gas Co. for a minimum of 6,000,000 feet of gas daily and a maximum of 12,000,000 feet of gas daily, for use in its refineries at Sugar Creek, Mo., following the opening of the Cities Service Gas Co.'s new 20-inch pipe line from the Texas Panhandle Field. This extensive gas field and increased pipe line facilities more than doubled the available gas supply in Kansas City.

Among other large industrial plants in the two Kansas Cities which have signed contracts with the Kansas City Gas Co. or the Wyandotte County Gas Co. and are either burning gas in their plants or soon will be, are: Armour & Co., Sinclair Refining Co., Wilson & Co., Fowler Packing Co., Sheffield Steel Co., Proctor & Gamble Soap Manufacturing Co., the Ford Motor Co., National Biscuit Co., Loose-Wiles Biscuit Co. and the Kansas City Terra Cotta & Faience Co.

A total of 20,000 feet of 24-inch pipe was ordered February 15, by the gas company and this will extend from the present end of the main in Kansas City direct to the Sugar Creek refineries. Construction on this new line will start at once.

This extension to Sugar Creek is part of the gas company's million dollar expansion program planned for this year.

Last year approximately $1,000,000 was spent by the Kansas City Gas Co. and the Wyandotte County Gas Co. in new construction and in improving the service and taking care of additional customers. It is planned to spend approximately the same amount this year in new lines and in making improvements to the company's already extensive network of pipe lines in the two cities.

The Kansas City Gas Co. started this week on its first big construction job for the year 1928. This job will take in approximately 900 possible consumers in the Marlborough district in the southern part of the city. In the total construction there will be 16 miles of pipe laid consisting of 8-inch, 6-inch, 4-inch, 3-inch and 2-inch pipe. The work should be finished along the latter part of April. The cost of this construction, it is estimated, will be approximately $83,000.

The Kansas City Gas Co. will soon receive material for the construction of 16,000 feet of 12-inch line to cost approximately $60,000. This will be installed to equalize and give better service to customers already on the company's lines and will increase the pressure in some of the low pressure districts in Kansas City.

PANHANDLE BUYS BUILDING

WICHITA FALLS, Tex., Mar. 3.—The Panhandle Oil & Refining Co. of this city has purchased a half interest in the Culbertson Building at the corner of Travis and Seventh Streets and will move its offices there within the next few months. The two top floors are to be made ready to house the company's general offices.

PARAGON AND NATIONAL TO OPERATE LAKE FLEET

TOLEDO, Ohio, Mar. 3.—Importance of Toledo harbor will take another advance step as a result of development by two large oil refining companies — the National Refining Co. of Cleveland and the Paragon Refining Co. of Toledo. Both companies are making plans for operating a fleet of crude and refined oil ships out of Toledo harbor using the dock of the Paragon Refining Co., when the coming season of navigation opens.

It was announced officially that the National has leased two of the large field tanks of the Paragon Refining Co., in East Toledo, and use of the docks for the shipping of this crude product to the National Refining Co. plant at Sarnia, Ontario. It is planned in the first season to ship 300,000 bbls., at the rate of about 10,000 bbls. per ship load, through the National Refining Co.

It developed also that the National has leased pipe line capacity from the Buckeye Pipe Line and the Prairie Oil Co., so that the crude it will use will be pumped directly from Oklahoma and Texas to the Toledo plant of the Buckeye and from there to Paragon tanks. Paragon now gets much of its oil by this pipe line route. A force of workmen now is making connections with the Buckeye Pipe Line plants.

Probably the most important development is the proposal before Paragon Refining Co. directors which will be acted upon at the annual meeting in Cincinnati for preparation of terminals and leasing of a line of ships for distribution of its refined products by boat to Cleveland, Buffalo and other lake cities in both Canada and the United States.

The facilities, with a few exceptions, are avaliable at the Toledo dock of the Paragon, but the adoption of the proposal would mean the establishment of the necessary facilities at Cleveland, Buffalo and other cities. The change, it is understood, will effect great savings in shipments to Paragon distributing centers.

Ultimately, it is expected, the Standard Oil Co. will operate out of its huge refining plant on the east bay shore a line of ships for distribution of its products to lake cities.

EMPLOYMENT IN REFINERIES

There was little change in employment conditions at refineries during January, according to the latest report of the United States Bureau of Labor Statistics. Based on reports from 57 refineries there were 44,612 employes on the payrolls during December, 1927, and 44,532 in January. This decrease in January was small compared to previous months. Employment at refineries has shown a steady decrease since early in 1927.

The per capita earnings in January of this year were 0.5 per cent greater than in December, 1927, and 4.7 per cent greater than in January, 1927. Compared to January, 1927, the January report of this year showed a decline of 17.6 per cent in the number of employes on the payrolls and 13.5 per cent in the amount of the payrolls.

TO OPERATE REFINERY

CHATHAM, Ontario, Mar. 3. — The recent measure of the Dominion government providing for duty-free admission of "tops" for use in Canadian refineries will, it is announced, be followed by the early resumption of operations by the Arctic Refinery at North Lethbridge, Alberta. The plant, first established some years ago, is now controlled by the California Petroleum Corp. of Los Angeles.

Natural Gasoline Manufacture

TANK WAGON PRICE TREND UPWARD FOR FIRST TIME IN NEARLY TWO YEARS

For the first time in nearly two years the average gasoline tank wagon prices in The Oil and Gas Journal's 50 cities shows a definite trend upward. Since July 1, 1926, this average price has shown a consistent decline, falling from 19.697 cents on that date to 14.21 cents on December 1, 1927, and has remained near that low average over the past three months, then going to 14.69 cents by March 1. While marketing continues to be highly competitive and refinery gasoline prices in general have not advanced materially, the gradual falling off of crude production in the Seminole Field has allowed the high gravity crudes to advance in price and as soon as the heavy gasoline consumption season is entered many anticipate higher refinery and retail prices.

The losses sustained over the past year in the marketing branch could not have continued much longer without ruinous results but within the past two weeks price adjustments have been made in several points where abnormally low prices have existed for nearly a year and by eliminating these price-war centers a foundation is being set for a general strengthening of the entire retail market.

Gasoline Tax

The average gasoline tax also shows a decrease, the result of declaring the Illinois 2-cent tax illegal by the State Supreme Court on February 25. What action may follow in the other states remains questionable but the general attitude favors a reasonable gasoline tax of some sort, so long as the money is applied to the improvement of roads. Many states have mapped out road construction programs or have issued bonds to pay for the roads already in use. The gasoline tax money was to be used in carrying out the paying for this program through the retirement of the bonds as they fall due. For this reason it is not likely that any general effort will be made to reconsider the validity of the state laws except where the tax has become a burden and out of proportion to state gasoline taxes in general.

Through the abolition of the tax in Illinois, the average tax in the 50 cities is shown as 3 cents and establishes Illinois, New York and Massachusetts as the only states without gasoline taxes.

AVERAGE TANK WAGON PRICE IN 50 CITIES

(Exclusive of tax)

February 1, 1926	16.213
March 1	17.267
April 1	18.517
May 1	18.487
June 1	19.607
July 1	19.697
August 1	19.697
September 1	19.587
October 1	19 167
November 1	18.187
December 1	17.607
January 1, 1927	17.567
February 1	17.469
March 1	17.007
April 1	16.160
May 1	15.320
June 1	14.720
July 1	14.86
August 1	14.89
September 1	14.62
October 1	14.39
November 1	14.32
December 1	14.21
January 1, 1928	14 29
February 1	14.33
March 1	14.69

GASOLINE PRICES EFFECTIVE MARCH 1, 1928

Table showing gasoline tank wagon prices as of March 1, 1928, exclusive of taxes in 50 representative cities, including the amount and the date of changes since February 1, 1928. High and low prices and state taxes also given.

	Prices Feb. 1	February Changes		Prices Mar. 1	High and Low 1927		High and Low 1926		Tax Mar. 1, 1928
Birmingham, Ala.	14.0	....	....	14.0	18.0	14.0	20.0	16.0	4.0
Phoenix, Ariz.	19.0	....	....	19.0	19.0	16.0	22.0	19.0	3.0
Little Rock, Ark.	11.0	....	27 12.0	12.0	15.0	11.0	18.0	14.0	5.0
San Francisco, Calif.	14.0	....	....	14.0	14.0	9.0	16.0	13.0	3.0
Denver, Colo.	13.0	....	....	13.0	18.0	13.0	20.0	16.0	3.0
Hartford, Conn.	18.0	....	....	18.2	22.0	18.0	21.0	17.0	2.0
Dover, Del.	16.0	....	....	16.0	19.0	16.0	20.0	17.0	3.0
Jacksonville, Fla.	13.0	....	....	13.0	16.0	10.0	19.0	12.0	5.0
Atlanta, Ga.	13.0	....	....	13.0	18.0	10.0	21.0	14.0	4.0
Boise, Idaho	19.5	....	....	19.5	22.5	19.5	24.0	20.0	4.0
Peoria, Ill.	9.0	2 11.0	12 13.2	13.2	18.2	9.0	19.2	10.5	...
Chicago, Ill.	14.0	....	....	14.0	17.0	14.0	18.0	15.0	...
Indianapolis, Ind.	11.2	....	....	*13.2	18.2	10.2	19.2	16.2	3.0
Des Moines, Iowa	11.9	....	....	11.9	16.0	9.9	19.5	16.0	3.0
Wichita, Kans.	11.8	....	....	11.8	15.8	10.8	16.8	14.8	2.0
Louisville, Ky.	13.0	....	....	13.0	17.0	13.0	20.0	17.0	5.0
New Orleans, La.	12.5	....	....	12.5	14.5	11.5	17.5	13.5	†3.0
Augusta, Me.	17.0	....	....	17.0	22.0	17.0	21.0	17.0	4.0
Baltimore, Md.	16.0	....	....	16.0	19.0	16.0	19.0	15.0	4.0
Springfield, Mass.	17.0	....	....	17.0	22.0	12.0	21.0	17.0	...
Detroit, Mich.	11.8	....	27 13.8	13.8	18.8	11.8	19.8	16.8	3.0
Duluth, Minn.	12.5	....	....	12.5	19.5	12.5	20.5	15.5	2.0
Natchez, Miss	12.5	....	....	12.5	15.5	12.5	18.5	15.5	4.0
Kansas City, Mo.	10.9	....	....	10.9	17.9	10.9	18.9	15.9	†3.0
Helena, Mont.	19.5	....	....	19.5	22.0	19.5	24.0	21.0	3.0
Omaha, Neb.	12.25	....	14 13.25	13.25	14.25	12.25	19.25	14.25	2.0
Reno, Nev.	18.0	....	....	18.0	18.0	15.0	19.5	16.5	4.0

(Continued on Page 144)

SKELLY PLANT INSTALLS NEW TYPE ABSORBER UNIT

The Skelly Oil Co. recently installed a Campbell froth type absorber at its Lyman, Tex., plant, which is the first installation of this type equipment in the Mid-Continent Field. The absorber replaced twelve 5-foot by 40-foot absorbers, with a consequent saving in space and improvement in plant appearance. The new absorber is stripping the gas satisfactorily with a decrease in operating costs due to the lesser amount of oil circulated, and the shutting down of one of the oil pumps formerly used to pump the oil over the secondary set of absorbers.

Operators in the Panhandle area have been considerably handicapped by the presence of iron sulphide in the mineral seal oil, which gradually builds up until it reaches sufficient proportions to clog the various equipment used in the absorption oil circuit. It is believed that the removal of the iron sulphide, in addition to preventing the actual clogging of the system, will also assist materially in reducing the corrosion of the equipment, as well as increasing the absorptive capacity of the contaminated oil. The Skelly Oil Co. has been experimenting at its Borger plants, with this problem for some time and results indicate that a filtering system installed in the oil circuit is about the most satisfactory means for removing the contamination from the oil, as well as thereafter keeping the oil in the system free from iron sulphide contamination.

BRAZIL EXPERIMENTING WITH NEW SUBSTITUTES

Various countries have favored the use of gasoline substitutes because gasoline had to be imported into the country while these substitutes could be made as by-products of some well-developed industry already operating there. Such is the case of several European countries including Germany and France where alcohols are being produced from coal tars and through the distillation of vegetable products. Brazil is also experimenting with the use of a similar product from the beet sugar refineries known as usga.

During July, 1927, sales of usga, the Brazilian gasoline substitute made from sugar alcohol, amounted to about 10 per cent of the gasoline sales; in October this figure had risen to about 15 per cent. It has been noticed that the tendency of drivers of passenger cars has been to return to gasoline, while truck drivers have been using usga in increasing quantities, especially for long runs. Experience seems to indicate that usga is most satisfactory for long runs in hot weather. The fuel is available in drums at one or two important interior cities, besides at filling stations in Recife and Olinda, and in the neighborhood of the sugar mills producing it. The use of raw sugar alcohol has been revived in the vicinity of the mills by the propaganda in favor of usga.

Recently a new fuel, also based on alcohol, has appeared under the name of nortina. This fuel has been subjected to several public tests and is reported to have demonstrated an efficiency about half way between that of usga and that of gasoline. All that has been learned to date regarding nortina, which is not yet available for general use, is that it appears to be a slight modification of usga.

GASOLINE ENGINE CRANE

As the oil industry centers its efforts to expand the usefulness of its products, new fields are constantly opening up and more recently a gasoline engine crane has been put into use. The crane is compactly mounted on a gasoline-driven truck or locomotive and in that way the same engine is used to transport the crane and when on the job site supplies the hoisting power.

The gasoline engine allows greater flexibility in operation and may be speedily transferred from one point to another. It has a particularly wide field of use in emergencies where it would take a long time to bring electric power to the job site. These cranes are being built to handle loads from 12 to 30 tons. The American Hoist & Derrick Co., of St. Paul, Minn., is said to be building this type of equipment.

SCHEDULES SUSPENDED

By an order just entered in Investigation and Suspension Docket No. 3069, the Interstate Commerce Commission suspended from March 2, 1928, until October 2, 1928, the operation of certain schedules as published in Supplement No. 10 to Agent J. E. Johanson's tariff I. C. C. No. 1987.

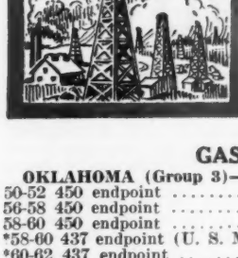
The suspended schedules propose to eliminate routing on petroleum and petroleum products from origin points in Texas on the Kansas City, Mexico and Orient Railway of Texas to points in Illinois on the Illinois Terminal Co. when in connection with the Alton & Eastern Railroad, which would force this traffic to move via other routes to secure the benefit of joint through commodity rates.

JANUARY NATURAL GASOLINE PRODUCTION

Natural gasoline production took a decided drop in all of the more important producing states during January, according to the report of the United States Bureau of Mines, whose figures have just been released. In December, the production is shown as 147,500,000 gallons, while in January the production declined to 143,900,000 gallons. The major portion of this decrease was in Oklahoma, with a substantial decrease being shown for Texas, and California also. Stocks of natural gasoline at all plants on January 31 amounted to 31,077,000 gallons, which represents a slight increase over the previous month.

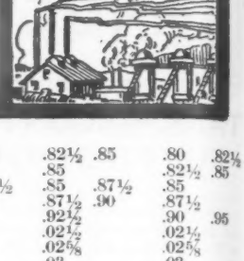
The blending of naphtha and natural gasoline has gradually lessened, and during January a further decrease is shown. Refinery demands were particularly heavy in California.

(Thousands of gallons)	Natural-Gas Gasoline Production Jan., 1928	Production Dec., 1927	Production Jan., 1927	Stocks End of Month Jan., 1928	Stocks End of Month Dec., 1928
Appalachian	10,600	10,000	11,200	3,919	3,240
Indiana, Illinois, etc.	1,300	1,300	1,700	285	281
Oklahoma, Kansas, etc.	53,900	57,300	43,600	15,773	15,635
Texas	26,200	27,000	24,700	7,704	8,789
Louisiana and Arkansas	6,700	6,800	6,900	1,644	1,162
Rocky Mountain	2,200	2,800	3,700	441	466
Total east of California	101,900	105,200	91,800	29,765	29,573
California	42,000	42,300	40,300	1,312	1,274
Total United States	143,900	147,500	132,100	31,077	30,847
Daily average	4,640	4,760	4,260		



REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields



GASOLINE AND NAPHTHA

OKLAHOMA (Group 3)—	Mar. 6		Feb. 28		Feb. 21	
50-52 450 endpoint	.05⅝	.05¾	.05½		.05½	
56-58 450 endpoint	.05⅝	.05¾	.05½		.05½	
58-60 450 endpoint	.05¾		.05¾		.05¾	
*58-60 437 endpoint (U. S. Motor)	.06178		.06168		.06211	
*60-62 437 endpoint	.06597		.06423		.06413	
*60-62 400 endpoint	.06674		.06705		.06690	
*64-66 375 endpoint	.07125		.07170		.07250	
68-70 360 endpoint	.07¼		.07¼		.07¼	
64-66 437 endpoint (blend)	.06⅛	.06¼	.06⅛	.06¼	.06⅛	.06¼

*Weighted average prices March 5 as reported by representative refiners. Sales to jobbers only.

KANSAS—						
58-60 437 endpoint (U. S. Motor)	.06¼	.06⅜	.06¼	.06⅜	.06¼	.06⅜
NORTH TEXAS—						
56-58 450 endpoint	.05⅝		.05½		.05½	
58-60 450 endpoint	.05⅝		.05½		.05½	
58-60 437 endpoint (U. S. Motor)	.06	.06¼	.06	.06¼	.06	.06¼
60-62 400 endpoint	.06⅜	.06½	.06⅜	.06½	.06⅜	.06½
64-66 390 endpoint	.06½	.06⅝	.06⅝		.06⅝	
64-66 375 endpoint	.06¾		.06¾	.07	.06¾	.07
68-70 360 endpoint	.07		.07	.07¼	.07	.07¼
64-66 437 endpoint (blend)	.06⅛		.06⅛	.06¼	.06⅛	.06¼
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.06⅜	.06½	.06⅜	.06½	.06⅜	.06½
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.06½		.06½		.06½	
PENNSYLVANIA—						
52-54 Naphtha	.07½	.07¾	.07½	.07¾	.07½	.07¾
54-56 Naphtha	.07½	.07¾	.07½	.07¾	.07½	.07¾
58-60 Gasoline	.07¾	.08	.07¾	.08	.07½	.07¾
60 Gasoline	.08	.08¼	.08	.08¼	.08	.08¼
62 Gasoline	.08½	.08¾	.08½	.08¾	.08½	.08¾
64 Gasoline	.09	.09¼	.09	.09¼	.09	.09¼
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.08	.08½	.08	.08½	.08	.08½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.05⅜		.05½	.05⅝	.05½	.05⅝
56-58 450 endpoint	.05⅜		.05⅝	.05⅞	.05¾	.06
58-60 437 endpoint (U. S. Motor)	.06¼		.06⅛	.06¼	.06⅛	.06¼
60-62 400 endpoint	.06½	.06⅝	.06½	.06⅝	.06½	
64-66 375 endpoint	.07		.07	.07⅛	.07	
68-70 360 endpoint	.07¼	.07⅜	.07¼	.07⅜	.70¼	
64-66 437 endpoint (blend)	.06¼	.06⅜	.06⅛	.06¼	.06⅛	.06¼

NATURAL GASOLINE

OKLAHOMA (Group 3)—	Mar. 6		Feb. 28		Feb. 21	
Grade A, 72-79.9, 375 e p., rec. 90%	.05	.05¼	.05½		.05½	.05⅝
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05		.05⅝	.05½	.05½	
Grade B, 76-83.9, 375 e p., rec. 85%	.04⅛		.04½		.04⅝	.04¾
Grade BB, 84-92, 375 e.p , rec. 85%	.04	.04⅛	.04¼	.04⅜	.04½	.04⅝
Grade C, 80-92, 375 e.p., rec. 78%	.03⅞	.04	.04⅛	.04¼	.04¼	.04½
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05		.05½		.05½	
Grade AA, 80-87.9, 375 e p., rec. 90%	.05		.05⅝		.05½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.04⅛		.04½		.04⅝	.04¾
Grade BB, 84-92, 375 e.p. rec. 85%	.04	.04⅛	.04¼		.04½	.04⅝
Grade C, 80-92, 375 e p., rec. 78%	.04		.04¼		.04¼	.04½
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.05¼	.05⅜	.05⅝		.05⅝	.05¾
Grade BB, 84-92, 375 e.p., rec. 85%	.04¼	.04½	.04⅜	.04⅞	.05	
Grade C, 80-92, 375 e p., rec. 78%	.04¼		.04½	.04⅝	.04⅝	.04¾
CALIFORNIA—						
75-85, 375, 390 endpoint	.07		.07	.07½	.07	.07½
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05	.05⅛	.05½		.05½	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05		.05⅝		.05½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.04⅛		.04½		.04⅝	
Grade BB, 84-92, 375 e.p., rec. 85%	.04⅛		.04¼	.04⅜	.04½	.04⅝
Grade C, 80-90, 375 e.p., rec. 78%	.04		.04⅛		.04¼	

BURNING OIL

KANSAS—	Mar. 6		Feb. 28		Feb. 21	
41-43 water white Kerosene	.04⅜	.04½	.04⅜	.04½	.04⅜	.04½
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04¼		.04⅛	.04¼	.04⅛	.04¼
42-44 water white Kerosene	.04¾		.04⅝		.04⅝	
NORTH LOUISIANA—						
41-43 prime white Kerosene	.04¾	.05	.04¾	.05	.04¾	.05
NORTH TEXAS—						
41-43 water white Kerosene	.04¼		.04¼		.04¼	
40-42 water white Kerosene	.04	.04⅛	.04	.04⅛	.04	.04⅛
ARKANSAS—						
41-43 water white Kerosene	.04¾	.05	.04¾	.05	.04¾	.05
PENNSYLVANIA—						
43 Kerosene prime white	.05¾	.06	.05¾	.06	.06	.06⅛
45 Kerosene water white	.06	.06¼	.06	.06¼	.06¼	.06⅜
46 Kerosene water white	.06¼	.06½	.06¼	.06½	.06¼	.06½
47 Kerosene water white	.06½	.06⅝	.06½	.06⅝	.06½	.06¾
300 Mineral Seal	.07	.07¼	.07	.07¼	.07	.07¼
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.05½	.06	.05½	.06	.05½	.06
Engine distillate, 43-45, 445 endpoint	.06½	.07	.06½	.07	.06½	.07
Engine distillate, 42-44, 480 endpoint	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.04¼		.04¼		.04⅛	.04¼
42-44 water white Kerosene	.04⅝	.04¾	.04⅝	.04¾	.04⅝	.04¾

FUEL OILS

KANSAS—	Mar. 6		Feb. 28		Feb. 21	
18-20 Fuel Oil, per bbl.	.85	.87½	.87½		.82½	.87½
22-26 Fuel Oil, per bbl.	.90		.90		.87½	.90
32-36 Gas Oil	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
38-40 Distillate	.03⅛		.03⅛	.03¼	.03¼	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.75	.80	.75	.80	.75	.77½
18-22 Fuel Oil, per bbl.	.82½	.85	.82½	.85	.80	.82½
22-26 Fuel Oil, per bbl.	.85		.85		.82½	.85
24-26 Feul Oil, per bbl.	.85	.87½	.85	.87½	.85	
26-30 Fuel Oil, per bbl.	.87½	.90	.87½	.90	.87½	
28-30 Fuel Oil, per bbl	.92½		.92½		.90	.95
32-36 Gas Oil (dark)	.02½		.02½		.02½	
32-36 Gas Oil (straw distillate)	.02⅝		.02⅝		.02⅝	
36-38 Distillate	.03		.03		.03	
38-40 Straw Distillate	.03	.03⅛	.03	.03⅛	.03	.03⅛
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars), per bbl.	.75	.80	.80	.85	.77½	.80
32-36 Gas Oil (straw)	.02⅜		.02⅜		.02⅜	
38-40 Straw Distillate	.03		.03		.03	
NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.97½	1.00	.97½	1 00	.97½	1.00
32-36 Gas Oil	.03	.03¼	.03	.03¼	.03	.03¼
ARKANSAS—						
33-36 Distillate	.03½	.03¾	.03½	.03¾	.03½	.03¾
32-36 Gas Oil (straw)	.02¾		.02¾		.02¾	
16-22 Refinery Fuel Oil, per bbl.	.90	.90	.92½	.95	.97½	1.00
GULF COAST (South Texas)—						
Gas oil	.04¼	.04½	.04¼	.04½	.04¼	.04½
Fuel Oil, per bbl	1.25		1.25		1.25	
PENNSYLVANIA—						
30-34 Fuel Oil	.04¾	.05	.04¾	.05	.04¾	.05
36-40 Fuel Oil	.05	.05¼	.05	.05¼	.05	.05¼
CALIFORNIA—						
33-36 Distillate	.03½	.03¾	.03½	.03¾	.03½	.03¾
27-32 Distillate	.02½	.03	.02½	.03	.02½	.03
*15-20 Fuel Oil, Bunker (at tide water)	.85	1.00	.85	1.00	.85	1.00
15-20 Fuel Oil (cargo lots), per bbl.	.75	.85	.75	.85	.75	.85
27 plus Diesel, per bbl.	1.15	1.19	1.15	1.19	1 15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars) Group 3, bbl.	.87½	.90	.85	.90	.85	.90
22-26 Fuel Oil (sellers' cars) Group 3, bbl.	.85	.82½	.82½	.87½	.82½	.87½
18-22 (Group 3), per bbl.	.82½	.85	.82½	.85	.82½	.85
16-20 Smackover, per bbl.	.90	.95	.92½	.97½	95	1.00
32-36 Gas Oil (zero)	.02¾	.02⅞	.02¾	.03	.02¾	.03
32-36 Gas Oil (industrial)	.02½	.02⅝	.02⅝		.02½	.02⅝
36-38 Distillate	.03	.03¼	.03	.03¼	.03	.03¼
38-40 Straw Distillate	.03¼		.03¼	.03⅜	.03¼	.03⅜

*Bunkers.

LUBRICATING OIL AND WAX

OKLAHOMA (Group 3)—	Mar. 6		Feb. 28		Feb. 21	
100 vis., 2 color, 20-25 cold test	.06¼	.06½	.06¼	.06½	.06¼	.06½
100 vis., 3 color, 20-25 cold test	.06	.06¼	.06	.06¼	.06	.06¼
150 vis., 3 color, 20-25 cold test	.08¼	.08½	.08¼	.08½	.08¼	.08½
150 vis., 4 color, 20-25 cold test	.08	.08¼	.08	.08¼	.08	.08¼
180 vis., 3 color, 23-28 cold test	.09⅜	.10	.09⅜	.10	.09⅜	.10
180 vis., 4 color, 23-28 cold test	.09¼	.09¾	.09¼	.09¾	.09¼	.09¾
180 vis., 5 color, 23-28 cold test	.09⅛	.09½	.09⅛	.09½	.09⅛	.09½
200 vis., 3 color, 23-28 cold test	.09½	.10½	.09½	.10½	.09½	.10½
200 vis., 4 color, 23-28 cold test	.09⅜	.10¼	.09⅜	.10¼	.09⅜	.10¼
200 vis., 5 color, 23-28 cold test	.09¼	.10	.09¼	.10	.09¼	.10
240 vis., 3 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
240 vis., 4 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 5 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
280 vis., 3 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16
280 vis., 4 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
280 vis., 5 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
Cylinder Stocks:						
600, steam refined, light green	.08	.09	.08	.09	.08	.09
600, steam refined, dark green	.06¼	.06¾	.06¼	.06¾	.06½	.07
190-200 vis. @ 210 Bright Stock	.30	.32	.30	.32	.30	.32
150-160 vis., @ 210 Bright Stock	.23	.24	.23	.25	.23	.25
Waxes:						
124-126 White Crude Scale Wax	.03		.03		.02¾	.02⅞
PENNSYLVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom	.07¾	.08	.07¾	.08	.07¾	.08
36 Miners' Neutral	.06½	.06¾	.06½	.06¾	.06½	.06¾
150, 3 color	.27	.27½	.27	.27½	.27	.27½
180, 3 color	.30	.30½	.30	.30½	.30	.30½
200, 3 color	.33	.33½	.33	.33½	.33	.33½
220, 3 color	.34½	.35	.34½	.35	.34½	.35
600, steam refined	.09¼	.09½	.09¼	.09½	.09¼	.09½
635, steam refined	.10¼	.10½	.10¼	.10½	.10¼	.10½
650, steam refined	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
600, Pennsylvania flash	.15	.16	.15	.16	.15	.16
*550, E filtered	.15	.15½	.15	.15½	.15	.15½
*600, E filtered	.15½	.16	.15½	.16	.15½	.16
600, E filtered	.15¼	.15¾	.15¼	.15¾	.15¼	.15¾
600, D filtered	.23½	.24	.23½	.24	.23½	.24
550, E filtered	.15½	.16	.15½	.16	.15½	.16
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.27	.27½	.27	.27½	.27	.27½
†122-124 White Crude Scale Wax	.03	.03⅛	.03⅛	.03¼	.03¼	.03¼
124-126 White Crude Scale Wax	.03⅛		.03⅛	.03¼	.03⅛	.03¼

*At Warren, Pa. †At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07½	.06½	.07½	.06½	.07½
No. 3 color, 200 vis., pale oil	.09	.09½	.09	.09½	.09	.09½
No. 3 color, 300 vis., pale oil	.10½	.11½	.10½	.11½	.10½	.11½
No. 3½ color, 500 vis., pale oil	.12	.13	.12	.13	.12	.13
No. 4 color, 750 vis., pale oil	.14	.15	.14	.15	.14	.15
No. 5 to 6 color, 200 vis., red oil	.07½	.08	.07½	.08	.07½	.08
No. 5 to 6 color, 300 vis., red oil	.08½	.09	.08½	.09	.08½	.09
No. 5 to 6 color, 500 vis., red oil	.09½	.10½	.09½	.10½	.09½	.10½
No. 5 to 6 color, 750 vis., red oil	.12	.12½	.12	.12½	.12	.12½
No. 2½ color, 200 vis., pale filtered	.11½	.12	.11½	.12	.11½	.12
No. 2½ color, 300 vis., pale filtered	.13	.13½	.13	.13½	.13	.13½
No. 2½ color, 500 vis., pale filtered	.14	.15	.14	.15	.14	.15

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

No. 2½-3 color, 750 vis., pale filtered	.17½	.19	.17½	.19	.17½	.19
CALIFORNIA—						
130 vis., 2½-3 color	.09	.10	.09	.10	.09	.10
200 vis., 2½-3 color	.10	.10½	.10	.10½	.10	.10½
300 vis., 3-3½ color	.10½	.11	.10½	.11	.10½	.11
350 vis., 3½-4 color	.11	.12	.11	.12	.11	.12
400 vis., 3½-4 color	.13	.14	.13	.14	.13	.14
Red Neutral:						
200 vis., 4½-5 color	.08½	.09	.08½	.09	.08½	.09
300 vis., 5-6 color	.09	.09½	.09	.09½	.09	.09½
400 vis., 5-6 color	.11	.11½	.11	.11½	.11	.11½
500 vis., 4½-5 color	.11½	.12	.11½	.12	.11½	.12
500 vis., 5-6½ color	.11	.11½	.11	.11½	.11	.11½
600 vis., 6 plus color	.12	.12½	.12	.12½	.12	.12½

Note: Bright Stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Mar. 6	Feb. 28	Feb. 21
Gasoline, U. S. Motor, 58-60 437	.08½	.08¼	.08¼
Kerosene, water white, 41-43	.07½	.07½	.07½
*Fuel Oil, bunker "C," 14-16, per bbl.	1.35	1.35	1.35
*Fuel Oil, Diesel, 28-30, per bbl.	2.00	2.00	2.00
Gas Oil, 28 plus	.05¼	.05¼	.05¼
25 pale Paraffin Oil	.12	.12	.12
28 pale Paraffin Oil	.07	.07	.07
285 red Paraffin Oil	.11½	.11½	.11½
250 red Paraffin Oil	.10½	.10½	.10½
225 red Paraffin Oil	.09½	.09½	.09½
200 red Paraffin Oil	.09	.09	.09
Refined Wax:			
120-122 a.m.p., per lb.	.04	.04	.04
125-127 a.m.p., per lb.	.04¼	.04¼	.04¼
130-132 a.m.p., per lb.	.04¾	.04¾	.04¾
135-137 a.m.p., per lb.	.05½	.05½	.05½
Petrolatum, in bbls., carload lots, per lb.:			
Dark green	.02	.02	.02
Amber	.03⅜	.03⅜	.03⅜
Extra amber	.03¾	.03¾	.03¾
Cream	.06½	.06½	.06½
Lily White	.08⅜	.08⅜	.08⅜
Snow White	.09⅜	.09⅜	.09⅜

*Lighterage, 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Mar. 6	Feb. 28	Feb. 21
Gasoline, U. S. Motor, 58-60 437, in cases	.2365	.2365	.2365
Kerosene, standard white, in cases	.1690	.1690	.1690
Kerosene, water white, in cases	.1790	.1790	.1790
600, steam refined cylinder stock, in bbls.	.17	.17	.17
635, steam refined	.19	.19	.19
650, steam refined	.20	.20	.20
600, Pennsylvania flash	.23	.23	.23
630, Pennsylvania flash	.35	.35	.35
600, Warren E	.25	.25	.25
600, Oil City E	.24	.24	.24
Light 135 Bright Stock	.40	.40	.40
Dark 135 Bright Stock	.38	.38	.38

LOS ANGELES EXPORT PRICES

	Mar. 6		Feb. 28		Feb. 21	
Kerosene, water white	.04¾	.05	.04¾	.05	.04¾	.05
U. S. Motor Gasoline, 53-55 437 e.p.	.06¼	.06½	.06¼	.06½	.06⅛	.06¼

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

*Corsicana heavy (March 14, 1927)....$1.00
Other fields.....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE
Carson and Hutchinson

Below 31 gravity	$ .60
31-31.9	.65
32-32.9	.70
33-33.9	.73
34-34.9	.76
35-35.9	.79
36-36.9	.82
37-37.9	.85
38-38.9	.88
39-39.9	.91
40-40.9	.94
41-41.9	.97
42-42.9	1.00
43-43.9	1.03
44 and above	1.06

Wheeler County

Below 29 gravity	$ .60
29-29.9	.65
30-30.9	.70
31-31.9	.75
32-32.9	.80
33-33.9	.83
34-34.9	.86
35-35.9	.89
36-36.9	.92
37-37.9	.95
38-38.9	.98
39-39.9	1.01
40-40.9	1.04
41-41.9	1.07
42-42.9	1.10
43-43.9	1.13
44 and above	1.16
Gray County	See gravity table

Humble Oil & Refining Co. Magnolia Petroleum Co. February 21.

*Iatan	Same as North Texas
Crane-Upton-Crockett	See gravity table
†Glasscock	.60
†Chalk	.80

*Includes Howard County and Westbrook Fields. Kay County Gas Co. pays $1.05 for Howard County crude, effective May 21.
†Magnolia Petroleum Co., Jan. 14, 1928.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (Feb. 7, 1298)	$ .75
Bellevue (Feb. 24, 1927)	1.20
Urania (Nov. 18, 1927)	.75
East El Dorado (March 16, 1927)	1.00
Other fields	See gravity table

Note—Cotton Valley and Bellevue, Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co. and Magnolia Petroleum Co.; (Magnolia Petroleum Co. posted Cotton Valley February 8); Urania, Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST
(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop.)

‡Grade A (March 14)	$1.20
Grade B	See gravity table
*Jennings, La. (March 14)	$1.05
†Saratoga, Batson, Dayton (March 14, 1927)	$1.20
§Markham (March 14)	1.00

*Gulf Pipe Line Co. †Sun Pipe Line Co. ‡Humble Oil & Refining Co. and other major buyers. §The Texas Company.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

*Luling (May 5)	$1.00
†Mirando (March 14)	1.00
Rockdale-Minerva (April 15):	
Below 38 gravity	1.25
38-38.9 gravity	1.27
39-39.9 gravity	1.29
40 and above	1.31
*Thrall	...
Callihan (May 15)	1.75

(Continued on Page 134)

CRUDE OIL GRAVITY TABLE

Gravity—	1 Okla., Kans., N. C. Tex.	2 No. La. and Ark	3 Smackover, Ark.	4 Stephens, Ark.	5 Gray County (Texas Panhandle)	6 Crane, Upton, Pecos, Crockett Counties (West Texas)	7 Salt Creek, Wyo.	8 Grade B & Light Crude (S. Coast)	9 Somerset (South Central Texas)
24 and above	....	....	.90	....	....	....	....	....	....
Below 24	.76	....	.75	....	....	....	....	....	....
Below 25	....	....	....	....	....	....	....	1.16	....
24 to 24.9	.76	....	....	....	....	....	....	....	....
25 to 25.9	.81	....	....	....	....	....	....	....	....
Below 26	....	....	....	....	.60	.60	....	....	....
26 to 26.9	.86	....	....	....	.60	.60	....	1.19	....
27 to 27.9	.91	....	....	....	.65	.60	....	1.21	....
Below 28	....	.91	....	.75	....	....	....	....	....
28 to 28.9	.96	.96	....	.87	.70	.60	....	1.23	....
29 to 29.9	1.01	1.01	....	.89	.75	.60	1.01	1.25	....
30 to 30.9	1.06	1.06	....	.91	.80	.60	1.06	1.27	....
31 to 31.9	1.11	1.11	....	.93	.85	.60	1.11	1.29	....
32 to 32.9	1.16	1.16	....	.95	.90	.60	1.16	1.31	1.04
33 to 33.9	1.19	1.19	....	....	.93	.60	1.19	1.33	1.07
34 to 34.9	1.22	1.22	....	....	.96	.60	1.22	1.35	1.09
35 to 35.9	1.25	1.25	....	....	.99	.60	1.25	1.37	1.11
36 to 36.9	1.28	1.28	....	....	1.02	.60	1.28	....	1.13
37 to 37.9	1.31	1.31	....	....	1.05	....	1.31	....	1.15
38 to 38.9	1.34	1.34	....	....	1.08	....	....	....	1.17
39 to 39.9	1.37	1.37	....	....	1.11	....	....	....	....
40 to 40.9	1.40	1.40	....	....	1.14	....	....	....	....
41 to 41.9	1.43	1.43	....	....	1.17	....	....	....	....
42 to 42.9	1.46	1.46	....	....	1.20	....	....	....	....
43 to 43.9	1.49	1.49	....	....	1.23	....	....	....	....
44 to 44.9	1.52	1.52	....	....	1.26	....	....	....	....
45 to 45.9	1.55	1.55	....	....	....	....	....	....	....
46 to 46.9	1.58	1.58	....	....	....	....	....	....	....
47 to 47.9	1.61	1.61	....	....	....	....	....	....	....
48 to 48.9	1.64	1.64	....	....	....	....	....	....	....
49 to 49.9	1.67	1.67	....	....	....	....	....	....	....
50 to 50.9	1.70	1.70	....	....	....	....	....	....	....
51 to 51.9	1.73	1.73	....	....	....	....	....	....	....
52 and above	1.76	1.76	....	....	....	....	....	....	....

Column 1—Magnolia Petroleum Co. posted schedule February 21, 1928, making price below 30 gravity $.75 per barrel, 30-30.9 gravity $.90 and 31-31.9 gravity $1.05, with 5 cents increase per degree higher in gravity, taking 32-32.9 gravity at $1.16 as basis, with a top price of $1.76 for 52 and above.

Humble Oil Refining Co. posted $1.52 on all oil 44 gravity and above.

Oklahoma—Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., Carter Oil Co., The Texas Company, February 21.

North Central Texas—[Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas), Iatan and Panola (Magnolia only. Iatan posted on flat price of $.93 by Magnolia on January 14, 1928). Currie, Nocona, Moran and Corsicana light]: Texas, Prairie, Sinclair and Gulf; The Texas Company, Humble Oil & Refining Co., February 21.

Kansas—Prairie, Sinclair; Carter, The Texas Company, February 21.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, De Soto, Haynesville, Homer and El Dorado only]; Standard Oil Co. of Louisiana, Texas Pipe Line Co., Louisiana Oil Refining Co., February 21 and Magnolia Petroleum Co. February 23.

Column 3—February 6, Louisiana Oil Refining Co. February 7, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co. February 8, and Atlantic Production Co. February 10.

Column 4—Atlantic Oil Producing Co., Louisiana Oil Refining Corp, The Texas Company, February 22.

Column 5—Humble Oil & Refining Co., Magnolia Petroleum Co., February 21.

Column 6—Humble Oil & Refining Co., August 23; Kay County Gas Co., Magnolia Petroleum Co., and Gulf Pipe Line Co., August 24.

Column 7—Midwest Refining Co., February 21. All crude over 37 gravity, $1.31 per barrel.

Column 8—Humble Oil & Refining Co. and other major buyers (schedule ends "35 and above"), March 14, with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. posted 2 cents differential for each degree above 35 gravity and $1.47 for 40 gravity and above.

Column 9—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CALIFORNIA CRUDE OIL PRICES
Standard Oil Co.-Union Oil Co. (Effective April 1, 1927)*

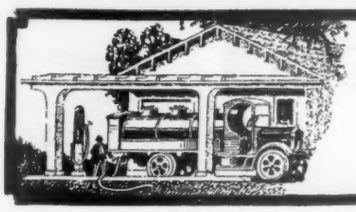
Gravity—	1 Fullerton, Seal Beach, Long Beach, Huntington Beach, Richfield, Rosecrans-Dom'guez, Torrance-Inglewood	2 Whittier, La Habra, Montebello	3 Kern River, Newhall-McKittrick, Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	4 Coyote	5 Santa Fe Springs	6 Conlinga	7 Wheeler Ridge	8 Santa Maria, Ventura, Orcutt, Salt Lake
14°	.85	.85	.75	.85	....	.75	.75	.85
15°	.85	.85	.75	.85	....	.75	.75	.85
16°	.85	.85	.75	.85	....	.75	.75	.85
17°	.85	.85	.75	.85	....	.75	.75	.85
18°	.85	.85	.76	.85	....	.75	.75	.85
19°	.85	.85	.76	.85	....	.76	.76	.85
20°	.85	.85	.77	.85	....	.76	.76	.85
21°	.86	.85	.79	.86	.85	.77	.77	.85
22°	.87	.85	.81	.87	.85	.78	.78	.85
23°	.88	.85	.83	.88	.85	.79	.79	.85
24°	.89	.85	.85	.89	.85	.80	.80	.85
25°	.90	.86	.87	.90	.86	.81	.81	.86
26°	.92	.87	.89	.91	.87	.83	.82	.87
27°	.94	.88	.91	.92	.88	.85	.83	.88
28°	.96	.89	.93	.93	.89	.87	....	.89
29°	.98	.90	.96	.94	.91	.89	....	.91
30°	1.00	.91	.99	.95	.93	.91	....	.93
31°	1.02	....	1.02	....	.95	.93	....	.95
32°	1.06	....	1.05	....	.97	.95	....	.97
33°	1.09	....	1.08	....	.99	.97	....	.99
34°	1.12	....	1.11	....	1.01	.99	....	1.01
35	1.15	....	....	....	1.03	1.01	....	1.03
36°	1.18	....	....	....	1.06	....	....	1.06
37°	1.21	....	....	....	1.09	....	....	1.09
38°	1.24	....	....	....	1.12	....	....	1.12
39°	1.27	....	....	....	1.15	....	....	1.15
40°	1.30	....	....	....	....	....	....	....
41°	1.33	....	....	....	....	....	....	....
42°	1.36	....	....	....	....	....	....	....

*Column 1—Long Beach, Seal Beach and Huntington Beach crudes, 14 to 32 degrees inclusive; Richfield and Fullerton, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Domingues, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.

Column 2—Whittier crude, 14 to 32 degrees; Montebello, 14 to 30 degrees.

Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34 degrees.

Column 8—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura and Orcutt, 14 to 39 degrees. Posted by Union Oil Co.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns March 6.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Chicago dist.	14.0	16.0	...	12.0
Decatur, Ill.	13.5	15.5	...	21.1
E. St. Louis	13.1	15.35	...	11.2
Joliet	14.4	16.4	...	12.3
Peoria	14.2	16.2	...	12.1
Quincy	14.2	16.2	...	11.9
Davenport, Ia.	17.5	19.5	3.0	12.3
Des Moines	15.9	17.9	3.0	12.3
Keokuk	17.5	19.5	3.0	12.3
Sioux City	17.1	19.1	3.0	11.9
Duluth, Minn.	15.5	17.5	2.0	12.9
Minneapolis	16.0	18.0	2.0	12.9
Mankato	14.1	16.1	2.0	12.7
La Crosse, Wis.	17.2	19.2	2.0	13.0
Milwaukee	16.1	18.1	2.0	11.9
Madison	16.2	18.3	2.0	12.1
Detroit, Mich.	17.8	19.8	3.0	13.7
Grand Rapids	17.7	19.7	3.0	13.6
Saginaw	17.9	19.9	3.0	13.8
Evansville, Ind.	17.0	19.0	3.0	13.0
Ft. Wayne	16.4	17.4	3.0	13.4
Indianapolis	17.2	19.2	3.0	12.2
South Bend	17.4	19.4	3.0	13.4
Fargo, N. D.	18.9	20.9	2.0	14.9
Huron, S. D.	19.5	21.5	4.0	13.9
Sioux Falls	16.0	18.0	4.0	13.4
*K. C., Mo.	14.9	16.9	3.0	10.6
*Springfield	16.8	18.8	3.0	11.5
*St. Louis	15.6	17.9	2.5	11.3
*St. Joseph	14.5	16.5	3.0	11.2
Wichita, Kans.	14.8	16.8	2.0	10.8
Bartlesville, Ok.	15.5	17.5	3.0	10.5

NAPHTHAS

	Tank wagon	Tank car
Oleum spirits	14.7	9.5
V. M. & P. naphtha	16.2	11.0
Cleaner's naphtha	13.0	12.0
Stanisol	19.0	12.5

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 or more gallons	7.6

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

Tank wagon prices of gasoline subject to discount of 1 cent a gallon on dumps of 50 gallons or more throughout territory except Chicago district where discount applies only to dumps of 100 gallons. Kerosene subject to 1 cent discount on dumps of 50 gallons or more.

Outside the Chicago district, the following quantity discount schedule is in effect on monthly tank wagon deliveries of gasoline: 6,000 gallons or more, 1½ cents; 10,000 gallons or more, 2 cents; 15,000 gallons or more, 3 cents. These discounts include the 1 cent allowed on dumps of 50 gallons or more at one delivery.

Within the Chicago district, the following quantity discount schedule is in effect on tank wagon deliveries of gasoline: 750 to 2,000 gallons, one-half cent; 2,000 to 3,000 gallons, three-fourths cent; 3,000 to 6,000 gallons, 1 cent; 6,000 to 10,000 gallons, 1½ cents; 10,000 to 15,000 gallons, 2 cents; 15,000 gallons or more, 3 cents. These discounts are in addition to the special discount of 1 cent on dumps of 100 gallons or more at one delivery.

If the quantity bought during the year is equal to or exceeds 12 times the agreed monthly quantity, the discount is paid or credited on the entire quantity at the close of the term less the monthly payments made during the year.

*State tax 2 cents; remainder city tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
All Ohio points	17.0	19.0	3.0	14.5

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.*

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	13.0	17.0	3.0	11.0
Fort Worth	14.0	17.0	3.0	10.0
Houston	13.0	17.0	3.0	15.0
San Antonio	14.0	17.0	3.0	10.0
El Paso	15.0	19.0	3.0	16.0
Texarkana	16.0	19.0	3.0	12.0
Muskogee, Ok.	16.0	17.0	3.0	11.0
Okla. City	14.0	15.0	3.0	11.0
Tulsa	16.0	17.0	3.0	11.0
Ft. Smith, Ark.	17.0	18.0	5.0	10.0
Little Rock	19.0	20.0	5.0	11.0

*The following is the schedule of discounts on quantity gasoline sales adopted by the Magnolia Petroleum Co. in Oklahoma: Over 750 gallons a month, one-half cent; over 2,000 gallons, three-quarters cent; over 3,000 gallons, 1 cent; over 4,500 gallons, 1¼ cents; over 6,000 gallons, 1½ cents; over 8,000 gallons, 1¾ cents; over 10,000 gallons, 2 cents. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1 cent; over 300 gallons a month, 1¼ cents; over 400 gallons, 1½ cents; over 500 gallons a month, 1¾ cents; over 600 gallons, 2 cents. The same rule applies for annual purchases in the tank wagon discounts.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
*N. Orleans, La.	15.5	18.5	3.0	14.0
Baton Rouge	14.0	17.0	2.0	12.5
Alexandria	15.0	18.0	2.0	14.0
La Fayette	15.0	18.0	2.0	13.5
Lake Charles	15.5	18.5	2.0	14.0
Shreveport	15.5	18.5	2.0	13.0
Knxville, Tnn.	19.5	22.5	3.0	15.0
Memphis	17.0	18.5	3.0	14.0
Chattanooga	19.5	22.5	3.0	15.0
Nashville	18.0	21.0	3.0	15.0
Bristol	19.0	22.0	3.0	14.0
Lit. Rock, Ark.	19.0	20.0	5.0	11.0

*Tax of 3 cents includes city tax of 1 cent. *Louisiana kerosene prices include 1-cent State tax and 1-cent parish tax.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	17.0	19.0	4.0	14.0
Augusta	19.0	22.0	4.0	16.5
Macon	16.0	19.0	4.0	13.5
Savannah	17.0	19.0	4.0	14.5
Birm'h'm, Ala.	18.0	21.0	4.0	14.5
Mobile	17.0	20.0	4.0	14.0
Montgomery	16.0	19.0	5.0	15.5
Clarks'le, Miss.	17.0	20.0	4.0	11.5
Jackson	17.0	20.0	4.0	11.5
Natchez	16.5	19.5	4.0	14.0
Gulfport	18.5	21.5	6.0	14.0
Vicksburg	16.5	19.5	4.0	14.0
Jack'ville, Fla.	18.0	21.0	5.0	11.5
Miami	20.0	23.0	5.0	14.5
Pensacola	19.0	22.0	5.0	13.0
Tampa	18.0	21.0	5.0	13.0
Lexington, Ky.	18.0	21.0	5.0	15.5
Covington	19.0	22.0	5.0	15.5
Louisville	18.0	21.0	5.0	15.0

In addition to the State tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline. Kerosene prices in Georgia includes 1 cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene only. Pensacola tax includes 1 cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to State tax.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Pittsburgh, Pa.	16.0	*21.0	...	13.0
Philadelphia	16.0	*22.0	...	13.0
Scranton	16.0	*22.0	...	13.0
Allentown	16.0	*22.0	...	13 0
Altoona	16.0	*22.0	...	13 0
Erie	13.0	*18.0	...	13.0
Dover, Del.	19.0	22.0	3.0	13.0
Wilmington	19.0	22.0	3.0	12.0
Spring'd, Mass.	17.0	17.0	...	15.0
Worcester	17.0	17.0	...	15 0
Boston	15.0	15.0	...	15.0
Providence, R.I.	19.0	19.0	2.0	15.0
Hartford, Conn.	20.0	20.0	2.0	14 0
New Haven	20.0	20.0	3.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	17.0	19.0	...	16.0
*New York	17.0	19.0	...	15.0
Buffalo	17.0	19.0	...	14.0
Rochester	13.0	16.0	...	14.0
Syracuse	17.0	19.0	...	15.0
Boston, Mass.	17.0	19.0	...	15.0
Augusta, Me.	21.0	23.0	4.0	15.0
M'nch't'r, N. H.	19.0	23.0	4.0	15.0
Burlington, Vt.	20.0	22.0	3.0	16.0

*Price in steel barrels.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Omaha	15.25	17.25	2.0	12.25
McCook	14.75	14.75	2.0	11.50
Norfolk	16.75	16.75	2.0	12.75
N. Platte	17.75	19.75	2.0	13.50
Scottsbluff	17.25	19.25	2.0	13.00

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
San Francisco	17.0	21.0	3.0	15.5
Pueblo	18.0	18.0	3.0	15.5
Los Angeles	16.5	20.5	3.0	15.5
Reno, Nev.	22.0	26.0	4.0	19.0
Portland, Ore.	17.5	21.5	3.0	16.5
Seattle, Wash.	16.5	20.5	2.0	16.5
Tacoma	16.5	20.5	2.0	16.5
Spokane	20.5	24.5	2.0	20.5
Phoenix, Ariz.	23.0	27.0	4.0	20.5

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlantic City	18.0	20.0	2.0	14.0
Newark, N. J.	18.0	20.0	2.0	14.0
Annapolis, Md.	20.0	23.0	4.0	12.0
Baltimore	20.0	23.0	4.0	10.0
Cumberland	20.0	23.0	4.0	14.0
Washington	18.0	21.0	2.0	12.0
Danville, Va.	20.5	....	4.5	14.0
Norfolk	20.5	23.5	4.5	12.0
Petersburg	20.5	23.5	4.5	14.0
Roanoke	20.5	23.5	4.5	14.0
Richmond	18.5	21.5	4.5	14.0
Ch'rlst'n, W.Va.	20.0	23.0	4.0	14.0
Keyser	20.0	23.0	4.0	14.0
Parkersburg	17.0	20.0	4.0	14.0
Wheeling	20.0	23.0	4.0	14.0
Charlotte, N. C.	20.0	23.0	4.0	14.0
Hickory	20.0	20.0	4.0	14.0
Mt. Airy	20.0	23.0	4.0	14.0
Salisbury	20.0	23.0	4.0	14.0
Charlst'n, S. C.	20.0	23.0	5.0	14.0
Columbia	20.0	23.0	5.0	14.0

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Denver, Colo.	16.0	18.0	3.0	14.5
Pueblo	16.0	18.0	3.0	14.5
Grand Jct.	20.5	22.5	3.0	18.0
Casper, Wyo.	17.0	19.0	3.0	13.0
Cheyenne	18.0	20.0	3.0	14.5
Butte, Mont.	22.5	22.5	3.0	19.0
Helena	22.5	24.5	3.0	19.0
Salt L'ke, Utah	20.0	21.0	3.5	17.0
Aubu'que, N. M.	21.0	24.0	5.0	17.0
Boise, Idaho	23.5	25.5	4.0	19.0
Twin Falls	23.5	25.5	4.0	19.0

TANK WAGON CHANGES

January 29—Atlantic Refining Co. increased the gasoline tank wagon and station prices 1 cent in Pittsburgh and Philadelphia, Pa., Springfield, Mass., 2 cents in Worcester, Mass., Hartford, Conn., and New Haven, Conn. Kerosene was reduced 1 cent throughout Pennsylvania and Delaware to 13 cents and at Hartford, Conn., to 14 cents.

February 27—Magnolia Petroleum Co. increased the gasoline tank wagon and station prices 1 cent in Texarkana, making the new prices 16.0 and 19.0 cents, Little Rock, Ark., 1 cent to 17.0 cents. The tank wagon was raised 3 cents and the station price 1 cent in Fort Smith, Ark., making the new prices 17.0 and 18.0 cents.

Standard Oil Co. of Louisiana increased the gasoline tank wagon and station prices to 18.0 and 19.0 cents, respectively, in Little Rock, Ark.

February 28—Standard Oil Co. of Louisiana increased the gasoline tank wagon and station prices 1 cent at Little Rock, Ark., to 19.0 and 20.0 cents.

February 27—Continental Oil Co. increased kerosene 2 cents in Denver, Colo., to 14.5 cents.

February 29—Standard Oil Co. of Indiana increased the gasoline tank wagon price 1 cent and the station price 2 cents in Minneapolis, Minn., to 16.0 cents and 18.0 cents.

March 1—Standard Oil Co. of Indiana increased the gasoline tank wagon and station prices at Indianapolis, Ind., to 17.2 cents and 19.2 cents, and the gasoline station price to 19.4 cents in South Bend, Ind.

March 1—Magnolia Petroleum Co. increased the gasoline tank wagon to 15.0 cents and the station price to 19.0 in El Paso, Tex. The gasoline tank wagon was advanced to 14.0 cents and the station price to 17.0 cents in San Antonio, Tex.

March 2—Magnolia Petroleum Co. increased the gasoline tank wagon price to 13.0 cents and the station price to 17.0 cents in Dallas, Tex. At Fort Worth the station price was advanced to 17.0 cents.

March 4—Magnolia Petroleum Co. advanced the gasoline station price to 17.0 cents in Houston, Tex.

CRUDE OIL PRICES

(Continued from Page 133)

Lytton Springs (Lockhart) See gravity table
Somerset ..... See gravity table

*Posted by Magnolia Petroleum Co. Thrall prices same as North Central Texas less 19½ cents per cwt. freight.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective March 14)

Rock Creek, Wyo. (March 12)	$1.31
Salt Creek	See gravity table
Big Muddy (March 12)	$1.31
Mule Creek (May 1)	1.10
Grass Creek, heavy	.90
Grass Creek, light	1.17
Elk Basin (March 12)	1.33
Lance Creek (March 12)	1.30
Poison Spider	1.00
Notches	.65
Rex Lake (February 22)	1.10
Osage	1.33
Lost Soldier (contract)	.95
Greybull-Torchlight	1.33
Hamilton Dome	.85
Cat Creek (Mont.)	1.33
Sunburst (Mont.) (Jan. 26, 1928)	1.50
Artesia (March 12)	1.00
Hogback (N. Mex.) (March 14)	1.33

Note: Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective December 17)

Penna Grade Oil in New York Transit Line (New York)	$2.30
Bradford District Oil in National Transit Lines (Pennsylvania)	2.30
Penna Grade Oil in National Transit Lines (Pennsylvania)	2.05
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	2.05
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	2.00
Penna Grade Oil in Buckeye Pipe Line lines (Ohio)	2.35
Cabell Grade Oil in Eureka Pipe Line lines (West Virginia) (February 9, 1928)	1.35
Corning 35-cent grade oil in Buckeye Pipe Line Co.'s line (December 19)	1.45
Corning 25-cent grade oil in Buckeye Pipe Line Co.'s lines (December 19)	1.45
Somerset Oil in Cumberland Pipe Line lines (Kentucky) (February 9, 1928)	1.45
Ragland Grade oil in Cumberland Pipe Line lines (Kentucky) (August 1)	.95
Kelster (Pennsylvania) (August 1)	1.10

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective March 14, 1927)

Lima (February 10)	1.55
Wooster	1.57
Illinois (Feb. 23, 1928)	1.50
Indiana (Feb. 10, 1928)	1.32
Princeton (Feb. 23, 1928)	1.50
Plymouth (Feb. 23, 1928)	1.23
Waterloo (Nov. 17, 1926)	1.35
*Western Kentucky	1.39
**Saginaw, Mich., Saginaw Sand (May 27)	1.06
**Saginaw, Mich., Berea Sand (May 27)	1.06
†Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 16)	1.50
‡Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (March 16, 1927)	1.50
§Oil Springs (Canada) (February 10, 1928)	2.02
§Petrolia (Canada) (February 10, 1928)	1.96

*Posted by Ohio Oil Co.
†Posted by Paragon Development Co.
‡Posted by Stoll Oil Refining Co.
§Posted by Imperial Oil Co., Ltd.
**Posted by Sun Oil Co.

MEXICAN CRUDE

Note—Due to the fact that the exportation of Tuxpam light crude oil has become a negligible factor, prices will no longer be published.

*Panuco heavy (f.o.b. Mex. ports)	$1.15

*$1.15.

GASOLINE TAX FOR BRITAIN

The British Automobile Association is organizing a petition to Parliament, urging that the present method of motor taxation be amended in favor of a flat rate duty on petrol, plus a small registration fee. The association recently took a referendum of motor owners throughout the country, with the result, it is stated, that 97 per cent declared themselves in favor of a petrol tax and against the present vehicle tax. An effort is to be made to convince the government that the petrol tax should be introduced this year.

OKLAHOMA P. L. STATEMENT

The Oklahoma Pipe Line Co.'s statement for February shows crude oil runs of 2,866,757.78 bbls., or a daily average of 98,853.72 bbls.; shipments of 2,741,400.83 bbls., or a daily average of 94,531.06 bbls., and stocks of 3,055,308.61 bbls., an increase over the January stocks of 110,188 bbls.

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Also Makers of Sinclair Gasoline and H-C Gasoline

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Oil Securities Had Little Trading

Offered Contrast to General Market Which Displayed Improved Tone. New High for Indian Refining Chief Change

The oil stocks lapsed into lethargy last week after a spurt experienced during the previous seven days. There was an apparent lack of interest which was reflected in the limited amount of trading in the oils. They offered a contrast to the general market which displayed an improved tone during the week with special strength in General Motors, United States Steel and other industrial leaders.

The only real change in the oils was a new high for Indian Refining which touched 13¼ cents.

Standard Oil Co. of Indiana

The following statement was made by Col. Robert W. Stewart, chairman of the board of directors of the Standard Oil Co. of Indiana, to the stockholders at their annual meeting at Whiting, Ind., March 1:

The company's balance sheet for 1927, together with that for 1926, follows:

	December 31, 1927	December 31, 1926
Assets		
Real estate ...	$40,176,517.12	$35,789,712.74
Plant, less dep.	122,019,836.05	116,290,029.07
Personal prop. .	2,523,467.98	2,528,343.99
Investments in other comp'ies	140,338,575.28	129,894,095.28
Merchandise ..	49,863,314.60	71,302,198.86
Accts. receiv'ble	20,814,296.87	24,392,931.04
Cash, Govt. securi.ies, invsts.	86,869,832.91	66,299,552.31
Total	$462,605,840.81	$446,496,863.29
Liabilities		
Capital stock ..	$230,788,513.34	$228,415,463.34
Cap. surplus ..	70,313,636.20	66,113,439.20
Surplus	106,537,230.25	108,307,074.65
Accts. payable.	36,868,411.35	27,696,603.55
Reserves	18,098,049.67	15,964,282.55
Total	$462,605,840.81	$446,496,863.29

Analysis of Statement

The net earnings, before taxes, was $33,197,456 in 1927 compared with $62,598,764 in 1926, a decrease of $29,401,308. The net earnings, after a reserve for taxes of $3,065,000, was $30,132,456 for 1927 compared with $55,098,764 for 1926, a decrease of $24,966,308. This decrease is due principally to the reduced realization on sales of petroleum products as well as to a loss occasioned by the large carry-over of the petroleum products inventory of December 31, 1926, at prices in excess of realization during 1927, which more than offset the fact that during 1927 the company not only reduced manufacturing costs but actually sold more products by volume with less manpower and at a smaller marketing cost per barrel than in 1926, the volume of sales in 1926 having been 31,545,705 bbls. as compared with 33,131,975 bbls. in 1927.

Your board is pleased to be able to conclude with a statement that in its estimation the present position of the company is exceptionally strong, and in that connection respectfully suggests for your attention the items showing a greatly reduced inventory and a correspondingly heavy increase in the amount of cash and readily convertible securities on hand. The value of working supplies, crude oil and manufactured petroleum products on hand is shown at $49,863,315 compared with $71,302,199 in 1926, the company's largest previous inventory. In view of prevailing price conditions, this large reduction is considered an effective safety measure. On the other hand, the company is carrying in cash, government securities and investments a total of $86,869,833 compared with $66,299,552 a year ago, an increase of $20,570,281. This reserve in cash and securities is by far the largest in the history of the company and places it in a position where it will be able to cope with any possible unfavorable contingencies which may arise, or to take immediate advantage of any opportunities arising through improved conditions in the industry.

Sinclair Pipe Line

Net profit of the Sinclair Pipe Line Co. for 1927 was $5,367,989, after Federal taxes, comparing with $3,898,221 in 1926. The Standard Oil Co. of Indiana has a 50 per cent interest in the company, and its share of the 1927 profits was $2,683,994.

The Midwest Refining Co. reports from 1927 a net profit of $2,166,652, after charges and taxes, comparing with $9,310,948 in 1926. The Standard Oil Co. of Indiana owns 99.89 per cent of the capital stock.

Oil Merger Effective

Plan for the acquisition of the California Petroleum Co. by The Texas Corporation through exchange of stock has become effective. R. C. Holmes, president of The Texas Corporation, announced that more than 51 per cent of the stock of the California Petroleum Corp. has been deposited for exchange for stock of The Texas Corporation, pursuant with the latter company's offer to exchange one share of its stock for each two shares of the outstanding stock of the California Petroleum Corp., and that the proposed stock exchange plan has therefore become effective. The additional stock of The Texas Corp. required to consummate this exchange has been listed on the New York Stock Exchange effective upon notice of issue.

Barnsdall Corp.

Report of Barnsdall Corp. and subsidiaries for year ended December 31, 1927, shows net income of $4,229,796 after interest, Federal taxes and reserve for depreciation and depletion, equivalent to $3.61 a share (par $25) earned on combined 1,169,859 shares of Class A and Class B stocks. This compares with $6,007,485, or $5.28 a share, on 1,137,661 shares of combined stocks in 1926. Proportion of subsidiaries' net loss applicable to minority stockholdings deducted in 1927, amounted to $29,684 against $69,414 in previous year.

Consolidated balance sheet of Barnsdall Corp. and subsidiaries as of December 31, 1927, compares as follows:

	1927	1926
Assets		
†Oil and gas prop., etc.	$66,269,115	$61,085,183
Inv. & adv. affil. cos.	1,017,427	817,817
Cash	1,974,129	3,662,901
Sinking fund	75,747	77,500
Treas. stock	274,375	274,375
Bills & accts. rec.	1,783,034	1,833,970
Inventories	6,545,338	3,198,151
U. S. securities	.....	.....
Def. chgs.	219,913	240,876
Total	$78,159,076	$71,190,773
Liabilit'es		
*Class A stock	$28,598,250	$25,000,000
*Class B stock	922,606	3,715,900
Div. scrip	$5,750	.....
Cap. stock subs.	921,559	947,249
Funded debt	25,620,280	25,913,749
Adv. sales	.....	68,198
Divs. payable	.....	568,830
Bills payable	6,000,000	.....
Accounts payable	1,040,109	881,647
Accrued accounts	570,263	746,153
Surplus	$14,450,265	13,349,048
Total	$78,159,076	$71,190,773

*Par value $25. †After depreciation and depletion. ‡Includes $48,855 applicable to minority stock holdings in subsidiaries. §Includes Waite Phillips Co.

Prairie Oil & Gas

Report of Prairie Oil & Gas Co. for year ended December 31, 1927, shows net income of $2,679,222 after depreciation, depletion, Federal taxes, etc., equivalent to $1.11 a share (par $25) earned on 2,407,000 shares of stock. This compares with $15,962,367 or $6 65 a share on 2,400,000 shares in 1926.

Income account for 1927 compares as follows:

	1927	1926
*Net income	$ 2,679,223	$ 15,962,367
Dividends	3,612,098	3,606,456
Deficit	$ 932,875	†$12,355,911
P. & L. surplus	89,937,700	90,962,163

*After depreciation, depletion and Federal taxes. †Surplus.

Balance sheet of Prairie Oil & Gas Co. as of December 31, 1927, compares as follows:

	1927	1926
Assets		
Real estate	$ 761,098	$ 684,498
*Plant account	49,536,401	43,371,337
Notes recievable	3,216,561	260,000
Accounts receiv.	19,798,705	19,974,179
Securities	20,934,722	21,987,103
Merchandise	91,019,054	79,261,239
Cash	1,057,383	2,433,273
Total	$186,323,924	$167,971,629
Liabilities		
†Capital stock	$ 60,175,000	$ 60,000,000
Notes and accts. payable	35,906,624	16,852,166
Stock to emp.	304,600	157,300
Surplus	89,937,700	90,962,163
Total	$186,323,924	167,971,629

*After depreciation and depletion; includes oil and gas properties and equipment, pipe lines, steel storage, etc. †Par $25.

Prairie Pipe Line Co.

Prairie Pipe Line Co. for year ended December 31, 1927, reports net income of $18,327,712 after charges and taxes, but not including earnings of Pure Oil Pipe Line Co., equivalent to $22.62 a share (par $100) earned on 810,000 shares of stock. This compares with $14,446,787 or $17.83 a share in 1926.

Net earnings of Pure Oil Pipe Line Co. for 1927 amounted to $847,283 against $1,290,127 in previous year.

Statement for year 1927, compares as follows:

	1927	1926
Net income	$ 18,327,712	$ 14,446,787
Cred. P. & L. suspense	88,210	.....
Total cdts.	$18,415,922	$ 14,446,787
Dividends	8,100,000	6,480,000
Surplus	$ 10,315,922	$ 7,966,787

Balance sheet of Prairie Pipe Line Co. as of December 31, 1927, compares as follows:

	1927	1926
Assets		
Property	$ 95,968,509	$ 90,066,948
Stock affiliated cos.	7,703,807	7,703,884
Cash, other invest. and accts. rec.	56,380,764	47,992,003
Mater. and supplies	2,016,501	1,767,932
Def. assets	58,732	39,444
Unadj. credits	782,436	751,130
Total	$162,910,749	$148,321,341
Liabilities		
Capital stock	$ 81,000,000	$ 81,000,000
Current liabilities	2,392,750	2,117,751
Res. for taxes	3,366,542	2,786,054
Res. for depr.	33,857,700	30,408,396
Other credits	21,899	53,204
Surplus	42,271,858	31,955,936
Total	$162,910,749	$148,321,341

LIST OF ACTIVE PETROLEUM STOCKS

Stocks—	Par	Clos. Quot. Mar. 5	Clos. Quot. Feb. 27	1928 High	1928 Low	1927 High	1927 Low	1926 High	1926 Low
Amerada Corp.	..	29⅝	30	32¾	27⅛	37⅛	27⅝	32⅞	24⅝
Atlantic Refining, com.	100	102½	102	109⅞	95¾	131⅝	107	128⅝	97
Barnsdall "A"	25	23⅝	22¾	26½	22⅛	35½	20⅜	32½	23½
California Petroleum, com.	25	25⅝	25¼	26⅞	24	32⅝	20	38⅛	30⅝
Houston Oil	100	132⅝	128¼	156⅛	127⅞	175⅝	60½	75	50¼
Independent Oil & Gas	..	25⅝	23⅞	28¼	21⅝	32⅝	17⅝	34	20¼
Louisiana Oil	10	*10¼	10¼	12⅜	9⅜	13⅝	10½	19⅝	12
Maracaibo	..	16⅝	13⅛	18⅛	12½	22⅝	12	27⅜	18⅝
Marland	..	35½	34⅝	38⅝	33	58⅛	31	63⅝	41¼
Mid-Continent Petroleum	..	26⅝	25⅝	29½	25⅛	39⅝	25½	41	25⅝
National Supply	50	93	90	96½	90	95⅝	76	84⅞	55½
Oil Well Supply	25	34	34½	41	34½	44⅜	31¼	36	30
Pan American, B	50	42¼	40	46⅜	37⅝	66⅝	45⅛	72⅝	56⅛
Pan American, Western B	..	*19½	19¼	21	18¼	37⅞	16⅜	46	34
Phillips Petroleum	..	38⅝	37½	43½	35½	60¼	36½	54⅞	42⅛
Producers & Refiners	50	19⅝	18⅝	26	16	33⅞	16⅜	26	11
Pure O'l, com.	..	21⅝	20⅝	27½	19	33½	25	31	25⅝
Royal Dutch, N. Y., sh.	13.40	45⅜	46	48⅝	44⅝	54½	44¼	57⅜	49⅝
Shell Transport	10	44½	42⅝	42⅞	39⅝	49	41½	48⅞	42
Shell Union, com.	..	25⅝	25	26⅞	23¼	31⅝	24⅝	30⅞	24
Simms Petroleum	10	21½	20½	24⅝	18	23⅞	14¼	25⅝	16½
Sinclair Consolidated	..	19⅝	19½	21¼	17½	22⅝	15⅛	24⅞	16⅜
Skelly Oil	25	26	25⅜	28¼	25	37⅜	24⅛	37½	27
Standard of California	25	54½	53⅝	56⅝	53	60⅜	50⅜	63½	54
Standard of New Jersey, com.	25	39	38⅝	40¼	37⅜	41⅝	35⅛	46⅝	37½
Standard of New York	25	30¼	29⅜	31⅝	28⅞	34½	29⅜	47¼	30⅝
Sun Oil Co.	..	40⅜	37	39⅞	31½	34⅞	30	41¼	30⅛
The Texas Company	25	51⅜	51⅞	55⅜	50	58	45	58	48
Texas Pacific Coal & Oil	10	13	13⅝	17	12⅛	18⅞	13	19⅛	12⅛
Tide Water Associated	..	15⅛	15⅛	17¼	14⅜	19⅛	15⅝	21	17
Transcontinental	..	8½	7⅝	10¼	7½	10⅝	3⅝	5½	3
Union Oil of California	25	45	44	45⅝	42⅝	56⅛	39⅝	53⅜	37¼
Union Tank, com.	100	118½	117	125	119¼	126	94	120⅜	84¼
White Eagle Oil & Refining	..	*21½	20¼	24¼	20¼	27½	21⅝	29⅝	25½
Standard Oils									
Anglo-American Oil	£1	*20⅝	20⅜	21⅜	18½	21⅝	17⅛	19⅜	16½
Borne Scrymser	25	*50	52	56	50	69	49½	75	65
Buckeye Pipe Line	50	*59	59½	63	58	59	45	59½	42
Chesebrough Manufacturing Co.	25	*123	125	149⅝	120	126	76½	81⅛	63
Continental	10	17⅝	17⅛	23	16	22⅝	16¼	25⅞	10¼
Cumberland Pipe Line	100	*90	103¼	105	84	‡137	90	137	102
Eureka Pipe Line	100	*68	66	70	64⅛	66	47	43⅜	43
Galena Signal, com.	100	*5	5	6⅛	4	13½	4⅛	32⅛	9⅜
Humble Oil & Refining Co.	25	64⅛	60⅞	68	59⅛	67⅝	54	99⅝	52
Illinois Pipe Line	100	188	182¼	188⅜	176½	181½	123⅜	144	131
Imperial Oil	..	59	59	65¼	56⅜	64⅝	37⅝	39⅝	32¼
Indiana Pipe Line	50	79	75¼	79	75	93	61	68	52¼
International Petroleum Co.	10	37	36⅝	43	35	36⅝	28½	35½	28⅝
National Transit Co.	12.50	27½	24⅛	23⅞	20½	23¼	13¼	30⅝	27¼
New York Transit	100	*50	49¼	48	38½	42	31¼	61½	27¼
Northern Pipe Line	100	*110	105⅜	103	94	96	70	80½	64
Ohio Oil Co.	25	60⅝	59¾	66½	58½	66	52	67⅜	55⅝
Penn-Mex Fuel	25	*41	37½	39⅝	33	36⅛	12	24¼	15
Prairie Oil & Gas	25	49	48¼	50¼	47⅝	55½	45⅝	60½	49
Prairie Pipe Line	100	209	208	216	184	189¼	132	137½	122½
Solar Refining Co.	100	*177	176	178	175	‡201⅛	178	212	184½
South Penn Oil	25	37	39	40½	36⅜	41⅛	24½	50	30
Southwest Pa. Line	100	*95	94½	88⅜	70	78	55½	56	47½
Southern Pipe Line	50	*26	25	33½	21	39	18½	27	24
Standard of Indiana	25	73⅞	75¼	80¼	71⅛	80¼	64⅝	70½	60½
Standard of Kansas	25	*15⅛	15½	17	15	20⅞	15⅝	36½	26½
Standard of Kentucky	25	125	126½	133	124	125½	111½	134⅝	107
Standard of Nebraska	25	*41¼	40⅝	43	40⅛	49⅛	43	51⅜	42
Standard of Ohio, com.	100	*72⅝	73⅜	79⅝	72	81½	72	362	192½
Swan & Finch, com.	25	*17	16	17⅝	16½	21	14½	21	18
Vacuum Oil	25	143½	144⅝	149	136⅝	147	95¼	109⅝	94¼
Miscellaneous									
Gulf Oil Corp. of La.	25	107	108⅝	117¼	101⅛	116	86¼	95	82½

*Bid, no sales. ‡Old stock. †New stock. §Ex-dividend.
Quotations furnished by W. J. Wollman & Co.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb was as follows:

Mar.	5	62.56	Jan.	30	Dec.	27 62.86
Feb.	27	62.54	Jan.	23	Dec.	19 63.24
Feb.	20	60.77	Jan.	16	Dec.	12 62.07
Feb.	13	61.02	Jan.	9	Dec.	5 62.06
Feb.	6	62.03	Dec.	31	Nov.	28 62.92

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

VAPOR PHASE PROCESSES

What is the explanation for the present interest in vapor phase methods for cracking? Are these modern vapor phase setups capable of giving higher yields of gasoline?—L. Y. C.

A series of lectures before the Royal Society of Arts has been given by Dr. A. E. Dunstan on the general subject of the Scientific Foundations of the Refining of Petroleum. In this series is included a discussion of the various methods used for cracking and this same question is covered by Doctor Dunstan in the following:

"In the vapor phase cracking process the petroleum vapors were passed over heated pipe systems, and there was produced more or less gasoline. This gasoline was a rather complicated mixture of substances, which it was extraordinarily difficult to refine, possessing a dark yellow color and a particularly intolerable smell, and was regarded as an inadequate substitute for natural gasoline. Subsequently, however, the picture had entirely changed, and the high-pressure liquid phase cracking processes had been adopted, but today these latter processes were seriously threatened with a resurgence of the old vapor phase methods. The reason for this was not that the vapor phase methods gave a higher yield, because generally they gave a lower yield; neither was the reason to be found in ease of refinement, because the vapor phase cracked spirit was more difficult to refine than that obtained by the liquid phase processes. The threatened change was due to the invasion of the motor market by the high-compression engine. A straight paraffin gasoline would not function in an engine with a compression ration of 6 to 1, 7 to 1, or 8 to 1; it was necessary to add benzol, or dopes such as lead tetraethyl, and the curious thing was that from the same petroleum, cracked under the same conditions, there was, in fact, obtained a material which had a relatively high antiknock value, and was suitable for functioning in modern high-compression engines. It was safe to predict that within the next few years we should find a great development in vapor phase cracking methods, designed definitely to produce antiknock gasoline. In fact, there had been a renaissance of some of the older methods and processes within the last few years. The reason for this appeared to be that at the higher temperatures involved in the vapor phase cracking process there might be a more complete breaking down of the hydrocarbons to the various radicles, and certain it was that they recombined in a somewhat different way with increasing temperature. This was borne out by the fact that if a petroleum were cracked at 750 degrees Centigrade, one found that the cracked spirit was predominantly aromatic. In 1915-16, the Hall process had actually produced a notable amount of toluol, there being 16 or 17 per cent of toluol in the spirit produced. At one time hopes were entertained that this might be a valuable source of toluol for munitions purposes, but that hope was not realized. It might be that at other temperatures, as, for example, 600 degrees Centigrade—at which temperature many vapor phase systems operated—the rearrangement of the radicles might be entirely different, and one might find olefines, diolefines, and some aromatics which were definitely antidetonating in character."

GAS FROM COAL AND GAS OIL

What chemical change takes place in the manufacture of illuminating gas from bituminous coal and gas oil? Does the percentage of unsaturated hydrocarbons materially affect the value of gas oil to be used for this purpose?—V. H. B.

The production of gas from coal is what may be classed as a cracking operation. That is, through the agency of heat the molecular structure is rearranged with the formation of carbon, water, oil, organic substances and gas. The authorities appear to agree that ordinary coal does not contain carbon in the free form. The addition of gas oil is for the purpose of enriching the gas, which otherwise has a low heating value. The quantity of unsaturated compounds normally present in gas oil is not a material consideration as affecting the quality of the gas.

The chemical aspects of the carbonization of coal is described by Porter in Coal Carbonization, page 92, in the following: "The process of carbonization may be considered as taking place mainly in three steps, each involving its own set of reactions and influences: (1) The primary breakdown at low temperatures liberating liquids, some gases and solid residue; (2) Secondary reactions among these liberated tars and gases by higher temperatures, involving both degradation and synthesis; (3) Further progressive breakdown of the solid, producing chiefly gas and a hard carbonized residue. These steps proceeding in adjacent sections simultaneously.

Undoubtedly condensable vapors, giving thin tars or oils, are the principle ingredient of the low-temperature, early volatilized product. These pass mainly into the region of secondary decomposition, where they mingle with the gases that are being set free from the semicoked solids, and the mixture then—at increasing velocity—moves out through the hot mass of coke and semicoke to the free space above the charge.

Chemically the early formed products are made up of water vapor, complex hydrocarbons (of cyclic hydro-aromatic and alkyl-aromatic nature), hydroxy or phenolic compounds, nitrogen bases, hydrogen sulphide and hydrogen. The hydrocarbons easily break down into simpler structures, which in turn, if they have unsaturated bonds, may, at high temperatures, synthesize ring-formed bodies in the final tars and gases."

THE GUM TEST

We have noticed several references recently to a gum test on high test gasoline for stoves, lights, etc. We would appreciate very much if you would tell us how this test is made.—T. C. J.

The gum test is described in Technical Paper 323-B, Bureau of Mines, under Corrosion Test, page 96, from which the description below is adapted.

A hemispherical dish of spun copper approximately 3.5 inches in diameter, is polished with steel wool, wiped free from dust and weighed. Place 100 c.c. of the gasoline in the dish, set it in an opening of an actively boiling steam bath, so that the steam comes in contact with the outer surface of the dish up to the level of the gasoline. Leave the dish on the steam bath until all volatile material has disappeared. Wipe the outside of the dish free from moisture and dry at 212 Fahrenheit in an oven for one hour. Cool and weigh. The increase in weight is considered to be gum.

If the gasoline contains dissolved elementary sulphur or corrosive sulphur compounds, the bottom of the dish will be colored gray or black. If the gasoline contains undesirable gum-forming constituents there will be a weighable quantity of gum deposited in the dish.

The Federal Specifications require that aviation gasoline, fighting grade and domestic grade, shall not contain more than 3 mg. of gum.

PROPANE AND BUTANE FROM NATURAL GAS

What is the nature of the new propane liquid which is being extracted from natural gas?—B. T. J.

The information given below was furnished by Emby Kaye of the Skelly Oil Co.

Raw natural gasoline contains propane, butanes, pentanes, hexanes, heptanes, and small percentages of higher hydrocarbons. A propane-butane mixture can be obtained by fractionating, which can be compressed and bottled to make an economical gas fuel in isolated homes, hunting lodges, camps, pleasure yachts, etc. The compressed and liquefied mixture vaporizes into gas immediately it is released from pressure. The thermal value of the mixture in liquid form is about 100,000 B.t.u. per gallon; it burns with a blue, odorless, and very hot flame. It can take the place of acetylene in steel cutting, and is a valuable fuel in industry for many purposes where a heating medium free from sulphur is advantageous.

After the removal of the above propane-butane fraction, a fraction which is practically pure normal butane, can be distilled.

This can be shipped in tank cars constructed for 150 pounds pressure. Its thermal value is 2,967 B.t.u. per cubic foot. It is a much superior means of enriching water gas for town supply than gas oil usually employed, and in equal volume it has about the same enriching value.

Butane is also a most efficient and inexpensive refrigerant. It vaporizes at 1 degree Centigrade; it requires much less energy to operate than ammonia.

The gasoline remaining, after the removal of the butane fraction, has an initial boiling point of 105 and an end point of 350 degrees Fahrenheit, and is then a motor fuel suitable for both aviation or road cars.

But the pentane fraction can also be removed and this, when chlorinated and hydrolyzed, forms the valuable amyl alcohol. The gasoline still has an initial boiling point of 130 degrees Fahrenheit; by removing other fractions a product with an initial boiling point of 295 degrees Fahrenheit is obtained which has been found to be a good rubber solvent and has been marketed as such for some time past.

TREATING KEROSENE

The following, as submitted by Dr. A. E. Dunstan, Anglo-Persian Oil Co., London, gives some additional information about the treating of kerosene—"I peruse your excellent column in The Oil and Gas Journal with very great interest and I noticed in a recent issue (January 19) you were asked a question with regard to the treatment of kerosene with hypochlorite."

"The answer you gave was entirely correct, and we have never applied hypochlorite to kerosene unless in the form of a crude naphtha from which the gasoline can be distilled leaving kerosene residue that normally is filtered through bauxite, which was our earliest procedure. At a later date when we had set up better fractionating plant, we took off our gasoline and kerosene cuts direct from the crude and our modern procedure is to treat the kerosene with liquid SO_2 which brings about a large degree of desulphurization and then finish with a sweetening treatment of alkaline hypochlorite. We have found in recent years that a decidedly alkaline hypochlorite is about the cheapest sweetening agent known. It oxidizes mercaptan and that is all we really need to do, and the total cost of such treatment runs about 25 cents a ton."

AGITATOR AND TANK EXPLOSIONS

We have had several flashes and fires on the agitators and small storage tanks. We handle a high sulphur crude and these explosions are thought to be caused by sulphur deposits or static electricity. Have you any information about these conditions?—K. R.

The vapors and gases from crude oils, and from the various distillates, usually contain organic sulphur compounds and frequently there are large quantities of hydrogen sulphide evolved. When substances of this kind come in contact with iron there is a tendency for the sulphur and iron to combine in the form of iron sulphide. Freshly formed iron sulphide absorbs oxygen, from the air, very rapidly with the result that the temperature becomes great enough to heat the deposit to redness. When such deposits are formed in agitators, tanks and towers, where there are petroleum vapors, an explosion and fire results. This trouble is met with more frequently during dry and cold weather conditions. When there is plenty of moisture present the conditions are not favorable for the development of the high temperature. A flash in an agitator or tank may be extinguished with steam. It is a good plan to thoroughly steam a tower before opening it; this should be done when the tower is packed with forms of iron which are easily corroded, and it may be necessary in some cases to flood the tower with water in order to remove the dangerous deposit.

While it is a fact that under some conditions a stream of gasoline or kerosene will generate enough electricity to be detected by a delicate instrument, it appears doubtful that it is powerful enough to ignite these liquids under the conditions. We do not remember seeing any reliable reports in the literature showing that static electricity has, by experimental demonstration, caused an explosion or fire in connection with these liquids.

OSAGE SALE TO BE HELD MARCH 28 AND 29

(Continued from Page 33)

of all of Section 7, SE and SW Section 9, SW Section 12, NE and NW Section 16, all of Section 29, and SE and SW of Section 35.

At the Thursday, or second day's sale, Tracts 326 to 357, both inclusive, will consist of acreage in the Burbank area, when all or parts of Sections 7, 11, 18, 22, 23, 25 and 30-26-6, and all or parts of Sections 1, 2, 4, 14, 15, 21, 24, 25, 35 and 36-27-6, will be put up, also Tracts 484 to 487, both inclusive, in Township 27-5, in the Burbank area, and Tracts 465 to 483, both inclusive, in Township 26-5, west and south of the main body of the Burbank Field.

5-Year Leases

The Government announcement of the sale says: "The provisions of regulations requiring the drilling of a well within 12 months from date of approval of lease are hereby suspended as to this particular sale and lessees acquiring leases may hold same for the full 5-year period without drilling upon payment of rental to the superintendent for the lessor at the rate of $1 per acre per annum or a proportionate part thereof for each three months period the lease is held by the lessee and a well not drilled, such rental beginning 12 months from date of approval of lease; provided, that the superintendent in his discretion may direct the drilling of any undrilled lease if in his opinion the interests of the Osage Tribe warrant. Provided, that where mutual arrangements are made by lessees holding two or more adjoining or contiguous quarter-sections west of Range 8, or where such area is leased to one lessee, one test well may be drilled with the approval of the superintendent, subject to an appeal to the Secretary of the Interior, during the first year but with the understanding that after drilling of such well one shall be drilled on each quarter section within the following year and upon failure to do so rental will accrue for the balance of the life of the lease or until a well is completed in accordance with the terms thereof. Provided, however, that any arrangements or permission granted to drill any such test well shall not be construed as authorizing any parties, other than the lessee of the tract on which such well is drilled, to acquire an interest in the lease without the approval of the Secretary of the Interior."

The sale will start at 9:30 a. m. on each day. Following are the numbers and descriptions of the tracts to be offered:

Description of Land to be Offered East of Range 7

Wednesday, March 28

Tract	Description	Acreage
1	NE 31-22-12	160
2	SW 8-26-12	160
3	SE 29-26-12	160
4	NE 18-27-12	160
5	NW 20-27-12	160
6	NW 4-28-12	160
7	NW 5-28-12	160
8	SE 18-29-12	160
9	SW 18-29-12	160
10	SW 32-29-12	160
11	SW 9-21-11	160
12	SW 10-21-11	160
13	NW 22-21-11	160
14	SW 22-21-11	160
15	SE 26-21-11	160
16	SW 26-21-11	160
17	SW 32-21-11	160
18	SE 34-21-11	160
19	SW 12-22-11	160
20	NW 13-22-11	160
21	NW 14-22-11	160
22	NE 15-22-11	160
23	SE 15-22-11	160
24	NW 25-22-11	160
25	SW 25-22-11	160
26	SE 33-22-11	160
27	SW 33-22-11	160
28	SW 12-26-11	160
29	NE 29-26-11	160
30	NW 29-26-11	160
31	NW 22-27-11	160
32	NW 23-27-11	160
33	NW 4-20-10	160
34	SW 4-20-10	160
35	NW 9-20-10	160
36	NW 27-20-10	160
37	SW 27-20-10	160
38	NE 34-20-10	160
39	Fr. SE 34-20-10	98.20
40	Fr. SW 34-20-10	97.80
41	NE 36-20-10	160
42	NW 36-20-10	160
43	SE 25-21-10	160
44	SW 25-21-10	160
45	SE 35-21-10	160
46	SW 35-21-10	160
47	NE 5-23-10	160
48	NW 10-23-10	160
49	NE 16-23-10	160
50	SW 28-23-10	160
51	SW 32-23-10	160
52	SW 33-23-10	160
53	SE 29-24-10	160
54	NW 16-27-10	160
55	SE 9-28-10	160
56	NE 10-28-10	160
57	SE 32-28-10	160
58	SW 36-28-10	160
59	NE 4-20- 9	160
60	Fr. NW 4-20- 9	78.90
61	Fr. SE 4-20- 9	61.60
62	NW 4-21- 9	160
63	NE 5-21- 9	160
64	NW 5-21- 9	160
65	NE 6-21- 9	160
66	NE 7-21- 9	160
67	SE 25-21- 8	160
68	SW 25-21- 9	160
69	NE 33-21- 9	160
70	SE 7-22- 9	160
71	NW 11-22- 9	160
72	NE 31-22- 9	160
73	NW 31-22- 9	160
74	SE 31-22- 9	160
75	SE 32-22- 9	160
76	SW 32-22- 9	160
77	SE 3-23- 9	160
78	NE 6-23- 9	160
79	NW 6-23- 9	160
80	SE 6-23- 9	160
81	NW 10-23- 9	160
82	SW 14-23- 9	160
83	NW 23-23- 9	160
84	NW 26-23- 9	160
85	NE 27-23- 9	160
86	SE 27-23- 9	160
87	SE 29-23- 8	160
88	NE 36-23- 9	160
89	SE 36-23- 9	160
90	NW 22-24- 9	160
91	SW 10-25- 9	160
92	SW 23-25- 9	160
93	SE 26-25- 9	160
94	NE 27-25- 9	160
95	SE 4-27- 9	160
96	SW 4-27- 9	160
97	NW 13-27- 9	160
98	SW 13-27- 9	160
99	SW 30-27- 9	160
100	NW 31-27- 9	160
101	SE 10-21- 8	160
102	NW 11-21- 8	160
103	SE 15-21- 8	160
104	SW 1-22- 8	160
105	NE 5-22- 8	160
106	SE 5-22- 8	160
107	SW 16-22- 8	160
108	NE 33-22- 8	160
109	SE 33-22- 8	160
110	SE 19-24- 8	160
111	SW 2-25- 8	160
112	SE 9-25- 8	160
113	SW 10-25- 8	160
114	NW 11-25- 8	160
115	NW 15-25- 8	160
116	SW 12-26- 8	160
117	NW 13-26- 8	160
118	NW 25-26- 8	160
119	SW 19-27- 8	160
120	NW 22-27- 8	160
121	SW 22-27- 8	160
122	NW 6-28- 8	160
123	NE 8-28- 8	160
124	SE 8-28- 8	160
125	NE 22-28- 8	160
126	NW 22-28- 8	160
127	NE 26-28- 8	160
128	SE 26-28- 8	160
	Total	20,176.50

West of Range 8

Tract	Description	Acreage
129	NE 2-21- 7	160
130	NW 2-21- 7	160
131	SE 2-21- 7	160
132	SW 2-21- 7	160
133	N1 10-21- 7	160
134	NW 10-21- 7	160
135	SE 10-21- 7	160
136	SW 10-21- 7	160
137	Fr. NE 15-21- 7	118.80
138	Fr. NW 15-21- 7	84.65
139	NE 7-22- 7	160
140	NW 7-22- 7	160
141	SE 7-22- 7	160
142	SW 7-22- 7	160
143	NE 12-22- 7	160
144	NW 12-22- 7	160
145	SE 12-22- 7	160
146	SW 12-22- 7	160
147	Fr. NW 26-22- 7	110.50
148	SW 26-22- 7	160
149	NE 7-23- 7	160
150	NW 7-23- 7	160
151	SE 7-23- 7	160
152	SW 7-23- 7	160
153	SE 9-23- 7	160
154	SW 9-23- 7	160
155	SW 12-23- 7	160
156	NE 16-23- 7	160
157	NW 16-23- 7	160
158	NE 29-23- 7	160
159	NW 29-23- 7	160
160	SE 29-23- 7	160
161	SW 29-23- 7	160
162	SE 35-23- 7	160
163	SW 35-23- 7	160
164	NE 22-24- 7	160
165	NW 22-24- 7	160
166	SE 22-24- 7	160
167	SW 22-24- 7	160
168	SE 32-24- 7	160
169	NW 36-24- 7	160
170	SE 7-25- 7	160
171	SW 7-25- 7	160
172	SE 12-25- 7	160
173	SW 12-25- 7	160
174	SW 14-25- 7	160
175	SE 15-25- 7	160
176	SE 18-25- 7	160
177	NE 19-25- 7	160
178	NW 23-25- 7	160
179	NE 33-25- 7	160
180	NW 33-25- 7	160
181	SE 33-25- 7	160
182	SW 33-25- 7	160
183	SW 36-25- 7	160
184	NE 1-26- 7	160
185	SE 1-26- 7	160
186	NE 6-26- 7	160
187	SE 6-26- 7	160
188	SE 13-26- 7	160
189	SW 13-26- 7	160
190	NW 23-26- 7	160
191	SE 23-26- 7	160
192	SW 23-26- 7	160
193	NE 34-26- 7	160
194	NW 34-26- 7	160
195	SE 34-26- 7	160
196	SW 34-26- 7	160
197	NE 36-26- 7	160
198	NW 36-26- 7	160
199	SE 36-26- 7	160
200	SW 36-26- 7	160
201	NE 3-27- 7	160
202	SE 3-27- 7	160
203	NW 4-27- 7	160
204	NE 7-27- 7	160
205	NW 7-27- 7	160
206	SE 7-27- 7	160
207	SW 7-27- 7	160
208	NE 14-27- 7	160
209	SE 14-27- 7	160
210	NW 16-27- 7	160
211	SW 16-27- 7	160
212	NE 17-27- 7	160
213	SE 17-27- 7	160
214	NE 24-27- 7	160
215	SE 24-27- 7	160
216	NW 28-27- 7	160
217	NE 29-27- 7	160
218	NW 29-27- 7	160
219	NE 36-27- 7	160
220	SE 36-27- 7	160
221	NE 1-28- 7	160
222	SE 1-28- 7	160
223	NE 4-28- 7	160
224	NW 4-28- 7	160
225	SE 4-28- 7	160
226	SW 4-28- 7	160
227	NE 17-28- 7	160
228	NW 17-28- 7	160
229	SE 17-28- 7	160
230	SW 17-28- 7	160
231	SE 22-28- 7	160
232	SE 24-28- 7	160
233	SW 24-28- 7	160
234	NE 25-28- 7	160
235	NW 25-28- 7	160
236	NE 31-28- 7	160
237	NW 31-28- 7	160
238	NE 34-28- 7	160
239	NW 34-28- 7	160
240	SE 34-28- 7	160
241	SW 34-28- 7	160
242	NE 15-29- 7	160
243	NW 15-28- 7	160
244	SE 15-29- 7	160
245	SW 15-29- 7	160
246	NE 19-29- 7	160
247	NW 19-29- 7	160
248	NE 24-29- 7	160
249	SE 24-29- 7	160
250	NE 27-29- 7	160
251	NW 27-29- 7	160
252	SE 27-29- 7	160
253	SW 27-29- 7	160
254	SE 30-29- 7	160
255	SW 30-29- 7	160
256	NE 31-29- 7	160
257	NW 31-29- 7	160
258	NE 2-23- 6	160
259	NW 2-23- 6	160
260	SE 2-23- 6	160
261	SW 2-23- 6	160
262	NE 6-23- 6	160
263	NW 6-23- 6	160
264	SE 6-23- 6	160
265	Fr. SW 6-23- 6	144.10
266	SE 19-23- 6	160
267	SW 19-23- 6	160
268	NE 26-23- 6	160
269	NW 26-23- 6	160
270	SE 26-23- 6	160
271	SW 26-23- 6	160
272	NE 28-23- 6	160
273	NW 28-23- 6	160
274	SE 28-23- 6	160
275	SW 28-23- 6	160
276	NE 30-23- 6	160
277	NW 30-23- 6	160
278	NE 36-23- 6	160
279	NW 36-23- 6	160
280	NE 1-24- 6	160
281	SE 1-24- 6	160
282	NE 2-24- 6	160
283	NW 2-24- 6	160
284	SE 2-24- 6	160
285	SW 2-24- 6	160
286	NE 6-24- 6	160
287	NW 6-24- 6	160
288	SE 6-24- 6	160
289	SW 6-24- 6	160
290	NE 13-24- 6	160
291	NW 13-24- 6	160
292	SE 13-24- 6	160
293	SW 13-24- 6	160
294	NE 20-24- 6	160
295	NW 20-24- 6	160
296	SE 20-24- 6	160
297	SW 20-24- 6	160
298	SE 22-24- 6	160
299	SW 22-24- 6	160
300	NE 27-24- 6	160
301	NW 27-24- 6	160
302	NE 34-24- 6	160
303	NW 34-24- 6	160
304	SE 34-24- 6	160
305	SW 34-24- 6	160
	Total	48,314.55

Tracts 306 to 584 Will be Offered for Sale Thursday, March 29, 1928

Tract	Description	Acreage
306	NW 8-25- 6	160
307	SW 8-25- 6	160
308	NW 10-25- 6	160
309	SW 10-25- 6	160
310	NE 23-25- 6	160
311	NW 23-25- 6	160
312	SE 23-25- 6	160
313	SW 23-25- 6	160
314	NE 25-25- 6	160
315	NW 25-25- 6	160
316	SE 25-25- 6	160
317	SW 25-25- 6	160
318	SE 28-25- 6	160
319	SW 28-25- 6	160
320	NE 30-25- 6	160
321	NW 30-25- 6	160
322	SE 30-25- 6	160
323	SW 30-25- 6	160
324	SE 33-25- 6	160
325	SW 33-25- 6	160
326	SW 7-26- 6	160
327	SW 11-26- 6	160
328	NW 18-26- 6	160
329	SE 18-26- 6	160
330	SW 18-26- 6	160
331	NE 22-26- 6	160
332	SE 22-26- 6	160
333	NW 23-26- 6	160
334	NE 25-26- 6	160
335	NW 25-26- 6	160
336	SE 25-26- 6	160
337	SW 25-26- 6	160
338	NE 30-26- 6	160
339	NW 30-26- 6	160
340	SE 30-26- 6	160
341	SW 30-26- 6	160
342	NW 1-27- 6	160
343	SW 1-27- 6	160
344	NE 2-27- 6	160
345	SE 2-27- 6	160
346	NE 4-27- 6	160
347	SE 4-27- 6	160
348	SW 14-27- 6	160
349	SE 15-27- 6	160
350	SE 21-27- 6	160
351	SW 21-27- 6	160
352	SE 24-27- 6	160
353	SW 24-27- 6	160
354	NE 25-27- 6	160
355	NW 25-27- 6	160
356	SE 35-27- 6	160
357	SW 36-27- 6	160
358	NE 1-28- 6	160
359	NW 1-28- 6	160
360	SE 1-28- 6	160
361	SW 1-28- 6	160
362	NE 4-28- 6	160
363	NW 4-28- 6	160
364	NE 7-28- 6	160
365	NW 7-28- 6	160
366	SE 7-28- 6	160
367	SW 7-28- 6	160
368	NE 14-28- 6	160
369	NW 14-28- 6	160
370	SE 14-28- 6	160
371	SW 14-28- 6	160
372	NE 16-28- 6	160
373	NW 16-28- 6	160
374	SE 16-28- 6	160
375	SW 16-28- 6	160
376	NW 19-28- 6	160
377	SW 19-28- 6	160
378	NE 26-28- 6	160
379	NW 26-28- 6	160
380	SE 26-28- 6	160
381	SW 26-28- 6	160
382	NE 31-28- 6	160
383	NW 31-28- 6	160
384	SE 31-28- 6	160
385	SW 31-28- 6	160
386	NE 34-28- 6	160
387	NW 34-28- 6	160
388	SE 34-28- 6	160
389	SW 34-28- 6	160
390	NE 14-29- 6	160
391	NW 14-29- 6	160
392	SE 14-29- 6	160
393	SW 14-29- 6	160
394	NE 16-29- 6	160
395	SE 16-29- 6	160
396	NE 20-29- 6	160
397	NW 20-29- 6	160
398	SE 20-29- 6	160
399	SW 20-29- 6	160
400	NE 28-29- 6	160
401	SE 28-29- 6	160
402	NE 31-29- 6	160
403	NW 31-29- 6	160
404	SE 31-29- 6	160
405	SW 31-29- 6	160
406	NE 32-29- 6	160
407	SE 32-29- 6	160
408	NE 35-29- 6	160
409	NW 35-29- 6	160
410	SE 35-29- 6	160
411	SW 35-29- 6	160
412	Fr. Sec. 1-23- 5	216.25
413	Fr. E ½ 24-23- 5	75.65
414	Fr. NE 25-23- 5	47.15
415	NE 2-24- 5	160
416	NW 2-24- 5	160
417	SE 2-24- 5	160
418	SW 2-24- 5	160
419	NE 4-24- 5	160
420	NW 4-24- 5	160
421	SE 4-24- 5	160
422	SW 4-24- 5	160
423	NE 7-24- 5	160
424	SE 7-24- 5	160
425	NW 8-24- 5	160
426	SW 8-24- 5	160
427	NE 12-24- 5	160
428	NW 12-24- 5	160
429	SE 12-24- 5	160
430	SW 12-24- 5	160
431	Fr. E ½ 23-24- 5	141.30
432	NE 24-24- 5	160
433	NW 24-24- 5	160
434	SE 24-24- 5	160
435	SW 24-24- 5	160
436	NE 1-25- 5	160
437	NW 1-25- 5	160
438	SE 1-25- 5	160
439	SW 1-25- 5	160
440	SE 4-25- 5	160
441	SW 4-25- 5	160
442	NE 7-25- 5	160
443	NW 7-25- 5	160
444	SE 7-25- 5	160
445	SW 7-25- 5	160
446	NE 9-25- 5	160
447	NW 9-25- 5	160
448	NE 15-25- 5	160
449	NW 15-25- 5	160
450	SE 15-25- 5	160
451	SW 15-25- 5	160
452	NE 19-25- 5	160
453	NW 20-25- 5	160
454	SE 21-25- 5	160
455	SW 21-25- 5	160
456	NE 26-25- 5	160
457	SE 26-25- 5	160
458	NE 28-25- 5	160
459	NW 28-25- 5	160
460	NW 31-25- 5	160
461	SE 31-25- 5	160
462	SW 31-25- 5	160
463	NW 36-25- 5	160
464	SW 36-25- 5	160
465	NW 2-26- 5	160
466	SW 2-26- 5	160
467	NE 8-26- 5	160
468	NW 8-26- 5	160
469	SE 8-26- 5	160
470	SW 8-26- 5	160
471	NE 15-26- 5	160
472	NW 15-25- 5	160
473	SE 15-25- 5	160
474	SW 15-26- 5	160
475	NW 19-26- 5	160
476	SE 19-26- 5	160
477	SW 19-26- 5	160
478	NW 31-26- 5	160
479	SW 31-26- 5	160
480	NE 33-26- 5	160
481	NW 33-26- 5	160
482	SE 33-26- 5	160
483	SW 33-26- 5	160
484	NE 1-27- 5	160
485	NE 34-27- 5	160
486	SE 34-27- 5	160
487	SW 34-27- 5	160
488	NE 4-23- 4	160
489	NW 4-23- 4	160

Tract	Description	Acreage
490	SE 4-23- 4	160
491	SW 4-23- 4	160
492	NE 6-23- 4	160
493	SE 6-23- 4	160
494	NE 3-24- 4	160
495	NW 3-24- 4	160
496	SE 3-24- 4	160
497	SW 3-24- 4	160
498	NE 14-24- 4	160
499	NW 14-24- 4	160
500	SE 14-24- 4	160
501	SW 14-24- 4	160
502	NE 21-24- 4	160
503	NW 21-24- 4	160
504	SE 21-24- 4	160
505	SW 21-24- 4	160
506	NE 27-24- 4	160
507	NW 27-24- 4	160
508	SE 27-24- 4	160
509	SW 27-24- 4	160
510	NE 29-24- 4	160
511	NW 29-24- 4	160
512	SE 31-24- 4	160
513	SW 31-24- 4	160
514	Fr. E ½ 35-24- 4	73.50
515	NW 35-24- 4	160
516	Fr. SW 35-24- 4	146.50
517	NE 2-25- 4	160
518	NW 2-25- 4	160
519	SE 2-25- 4	160
520	SW 2-25- 4	160
521	NE 5-25- 4	160
522	NW 5-25- 4	160
523	SE 5-25- 4	160
524	SW 5-25- 4	160
525	NE 17-25- 4	160
526	NW 17-25- 4	160
527	SE 17-25- 4	160
528	SW 17-25- 4	160
529	NE 31-25- 4	160
530	Fr. NW 31-25- 4	149.46
531	Fr. S ½ 31-25- 4	108.30
532	NE 35-25- 4	160
533	NW 35-25- 4	160
534	SE 35-25- 4	160
535	SW 35-25- 4	160
536	Fr. NE 9-26- 4	104.50
537	Fr. NW 9-26- 4	117.30
538	SE 9-26- 4	160
539	SW 9-26- 4	160
540	Fr. NE 19-26- 4	115.60
541	Fr. S ½ 19-26- 4	200.35
542	NE 20-26- 4	160
543	NW 20-26- 4	160
544	SE 20-26- 4	160
545	SW 20-26- 4	160
546	NE 14-23- 3	160
547	NW 14-23- 3	160
548	SE 14-23- 3	160
549	SW 14-23- 3	160
550	Fr. N ½ 23-23- 3	197.97
551	Fr. N ½ 27-24- 3	174.20
552	SE 27-24- 3	160
553	SW 27-24- 3	160
554	NW 2-25- 3	160
555	NE 3-25- 3	160
556	NE 13-25- 3	160
557	NW 13-25- 3	160
558	SE 13-25- 3	160
559	SW 13-25- 3	160
560	NE 17-25- 3	160
561	NW 17-25- 3	160
562	SE 17-25- 3	160
563	SW 17-25- 3	160
564	NE 29-25- 3	160
565	NW 29-25- 3	160
566	SE 29-25- 3	160
567	SW 29-25- 3	160
568	NE 34-25- 3	160
569	NW 34-25- 3	160
570	SE 34-25- 3	160
571	SW 34-25- 3	160
572	Fr. SE 34-26- 3	127.80
573	Fr. SW 35-26- 3	78.30
574	NW 1-25- 2	160
575	SW 1-25- 2	160
576	NE 2-25- 2	160
577	SE 2-25- 2	160
578	Fr. W ½ 2-25- 2	148.75
579	NE 25-25- 2	160
580	Fr. NW 25-25- 2	147.62
581	SE 25-25- 2	160
582	Fr. SW 25-25- 2	67.62
583	Fr. W ½ 30-21- 8	81
	(Excepting 124.97 acres now under lease to Barnsdall Oil Co.), with four wells producing about 500 bbls. per month.	
584	Fr. NE 25-21- 8	116
	With three wells producing about 60 bbls. per month.	
	West Side	72,053.17
	East Side	20,176.50
	West Side	72,053.17
	Total acreage	92,229.67

The last two tracts include bed of Arkansas River together with Turkey Island up to center of channel on opposite or south bank of said island. The subsurface equipment which must be paid for in addition to bonus offered by the purchaser of these leases, has been estimated at

Tr. 583	$8,000.00
Tr. 584	6,000.00

In the event of failure to agree on price of such equipment the question shall be determined by arbitration. Purchase of surface equipment from operating companies is optional and if taken over prices shall be adjusted between the parties at interest.

"With reference to tracts Nos. 153 and 167 on which wells were recently drilled producing oil, interested parties should make an inspection thereof," says the Department Bulletin. "These wells were drilled by the present gas lessee and purchaser of these tracts will be required to reimburse said gas lessee for the cost of drilling including all damages paid to the surface owner of the land in addition to the cost of casing, tubing and other equipment. Such settlement to be made in accordance with that part of Paragraph 64 of the regulations of March 7, 1923, outlining procedure to be followed in reimbursing lessee expenditures made for drilling and equipment of producing wells on the premises.

"The oil produced from wells on the above properties after 7 o'clock a. m. following date of sale shall belong to the successful bidder provided leases are approved, but pending of such approval wells may be pumped by the present operators under arrangements with the successful bidders."

WEST TEXAS FIELDS

(Continued from Page 40)

hole. The well is bailed every other day and makes from 12 to 15 bbls. of oil. After being shut down for two weeks at one time at 6,572 feet it flowed around 300 bbls. in an hour and cleaned itself. The top of the pay is 6,250 feet.

The well was spudded in February, 1926, and while cost figures are not available it is estimated the cost is well above $100,000 at the present time. Two 5,000-foot lines spliced, and cable tools are being used. Twin motors are used for power and this permits the tools to be pulled out, bit changed and the tools run back on bottom in about two hours. There are 6,145 feet of 5⅞-inch casing in the hole.

The next deepest test drilling in West Texas at this time is Magnolia Petroleum Co.'s No. 1 Whitehead in Val Verde County which is drilling around 6,400 feet.

WEST TEXAS

Estimated Daily Average Production for the Week Ending March 4

Crane County	77,263
Crockett County	2,337
Ector County	15
Fisher County	235
Glasscock County	S. D.
Howard County	3,968
Jones County	1,270
Loving County	125
Mitchell County	3,378
Pecos County	47,548
Reagan County	19,977
Runnels County	190
Scurry County	45
Upton County	14,775
Winkler County	122,754
Total this week	293,880
Total last week	310,669
Decrease	16,789

WEST TEXAS

Daily Average Production by Leases for the Week Ending March 4

Company and Lease—	Wells	Bbls.
Crane County		
Church et al:		
University	1	102
Church & Weekley:		
University	3	928
Church & Fields:		
Duoll-University	1	123
Eastland Oil & Collett:		
University	8	4,117
Gulf Prod. Co.:		
All leases	67	18,598
Humble O. & R. Co.:		
University	13	4,669
Independent O. & G. Co.:		
University-A	5	1,045
University-B	2	995
Landreth Prod. Corp.:		
Cowden-Anderson	16	8,143
Magnolia Pet. Corp.:		
University-Hardwicke	14	2,596
University-O'Keefe	12	681
State-Lasseter	3	151
Magnolia et al:		
University-A	4	61
Pecos Oil Co.:		
University	15	3,787
Prairie O. & G. Co.:		
University	5	*397
State Lasseter	7	*11,417
Simms & Atlantic:		
University-A	9	*2,660
University-B	1	49
University-C	8	*4,474
University-D	12	*4,646
University-E	1	175
Stidham & Thrasher:		
University	1	11
The Texas Company:		
University	1	185
University-Beasley	1	27
Tidal Oil Co. et al:		
University-B	2	58
University-C	1	28
University-E	1	77
University-F	7	*2,180
University-G	3	*422
University-H	2	28
University-I	8	*3,580
Total Church & Fields-McElroy Pools	234	76,410
Average per well		327
Miscellaneous Crane County		
Gulf Prod. Co.:		
Waddell	1	27
Independent O. & G. Co.:		
Hughes	1	7
McMan O. & G. Co.:		
Hughes	2	65
Marland Oil Co.:		
All leases	15	599
The Texas Company:		
King	9	158
Union Land-F	1	0
Miscellaneous total	29	853
Grand total Crane County	363	77,263
Average per well		294
Pecos County		
Pandem Oil Co. et al:		
Pecos River Bed	6	478
California Oil Co.:		
Yates, Lease 1	12	3,675
Smith, Lease 1	1	79
Smith, Lease 3	11	3,531
Gulf Prod. Co.:		
All leases	11	7,517
Humble O. & R. Co.:		
M. A. Smith	6	1,861
M. A. Smith-B	4	1,347
Kirby Petroleum Co. & Edson:		
J. H. Tippett	1	235
Marland Oil Co.:		
Yates-A	10	945
Mazda & Savoy Oil Co.:		
M. A. Smith	1	240
McMan & Marland:		
Yates	15	3,463
McMan O. & G. Co.:		
J. H. Tippett	2	517
Mid-Kansas & Transcontinental:		
Yates-A	13	3,210
Yates-B	23	5,106
Yates-C	9	2,520
Yates-D	3	663
Yates-E	1	156
Yates-F	1	122
Smith	2	69
Smith-Taylor	10	4,257
Red Bank Oil Co.:		
Smith	2	480
Roxana Pet. Corp.:		
Tippett	7	3,072
Smith	5	1,003
Simms Oil Co.:		
Smith	6	3,022
Texon O. & L. Co.:		
Yates	2	0
Total Yates Field	162	47,548
Average per well		281.16
Winkler County		
Atlantic O. P. Co.:		
Grisham-Hunter	4	6,686
Grisham-Hunter-E	1	3,345
Ida Hendricks	1	350
Ida Hendricks-D	2	*2,656
Cranfill & Reynolds:		
Ida Hendricks	2	4,160
Grisham-Hunter-B	1	184
Gulf Prod. Co.:		
T. G. Hendricks	7	12,269
Humble O. & R. Co.:		
Grisham-Hunter-4	3	*4,246
Ida Hendricks-B	3	4,306
Independent O. & G. Co.:		
Grisham-Hunter	6	*8,575
Grisham-Hunter-B	1	*4,100
Hendricks	1	27
Ida Hendricks-B	1	365
Landreth Prod. Corp. & Roxana:		
Grisham-Hunter	2	5,746
Ida Hendricks-A	3	5,238
Magnolia Pet. Co.:		
Ida Hendricks	6	3,145
Murchison & Cranfill Bros.:		
Grisham-Hunter	2	170
Grisham-Hunter-C	1	110
Grisham-Hunter-B	1	780
Republic Prod. Co.:		
Grisham-Hunter-A	1	8,250
Grisham-Hunter-B	1	62
Roxana Pet. Corp. et al:		
Scarborough	1	20
Roxana Pet. Corp.:		
Grisham-Hunter-A	2	*2,574
Grisham-Hunter-D	2	*4,240
Ida Hendricks-B	2	*2,375
Ida Hendricks-C	5	*7,360
Southern Crude Co.:		
T-67 Hendricks-A	1	155
T-67 Hendricks-C	4	1,140
T-67 Ida Hendricks-B	1	585
T-67 Hendricks-F	1	1,575
T-68 Ida Hendricks-A	1	0
T-88 Ida Hendricks-A	1	905
T-88 Hendricks-B	1	4,276
T-88 Ida Hendricks-C	6	2,618
T-88 Hendricks-I	1	1,515
T-89 Grisham-Hunter-A	1	0
Texon O. & L. Co.:		
Grisham-Hunter-A	1	*2,736
Grisham-Hunter-B	2	5,275
Pure Oil Co.:		
Grisham-Hunter	3	2,715
Grisham-Hunter-B	2	2,015
Turman et al:		
Ida Hendricks	5	4,915
Total Winkler County	94	122,754
Average per well		1,305.9

*Pinched in.

WEST TEXAS COMPLETIONS
Week Ending March 4

Andrews County

J. S. Cosden's No. 1 Ratliff & Bedford, C SE of Section 8, Block 73, Public School Lands, was dry and abandoned at 4,116 feet.

Pecos County

Mid-Kansas and Transcontinental Oil Co.'s No. 19 I. G. Yates-A topped the pay at 1,118 feet and bottomed at 1,332 feet with an initial production of 365 bbls. per hour. California Oil Co.'s No. 11 M. A. Smith, Lease 3, had an initial production of 400 bbls. per hour from pay topped at 1,199 feet and bottomed at 1,400 feet. Transcontinental Oil Co.'s No. 1 Blackstone & Slaughter, Section 29, Block 129, St. L. Survey, was dry and abandoned at 4,988 feet.

Runnels County

Vacuum Oil Co.'s and Ladd and others' No. 2 R. M. McMillan found the pay at 2,514-16 feet with an initial production of 137 bbls. of oil and 17 bbls. of sulphur water.

Winkler County

Atlantic Oil Producing Co.'s No. 3 Grisham-Hunter-A, Section 34, Block B-5 topped the first pay at 2,825 feet, with the big pay found at 2,885 feet. The well was drilled to a total depth of 3,050 feet with an initial production of 40 bbls. per hour and has been temporarily completed. Same company's No. 4 Grisham-Hunter-A, Section 34, Block B-5, topped the pay at 2,962 feet and was drilled to a total depth of 3,048 feet and has been temporarily completed at 70 bbls. per hour. Landreth and Roxana Petroleum Corp.'s No. 1 Ida Hendricks-A, SE cor. SW Section 29, Block B-5, topped the pay at 3,080-84 feet and had an initial production of 3,020 bbls. in 13 hours. Roxana Petroleum Corp.'s No. 2 Grisham-Hunter-A, SE cor. E half NW of Section 45, Block 26, found the pay at 2,741-46 feet. The well had an initial production of 70 bbls. per hour and has been temporarily completed. Southern Crude Oil Purchasing Co.'s No. 2 Grisham-Hunter, 3-T-68-A, is making 75,000,000 feet of gas from pay found at 2,470-2,730 feet and the well has been temporarily completed as a gas well. Same company's No. 1 Grisham-Hunter T-89-A has been temporarily abandoned at 2,687 feet. Pure Oil Co.'s No. 2 Hendricks-B found the pay at 2,890-2,970 feet with an initial production of 1,262 bbls. Same company's No. 3 Hendricks-B found the pay at 2,900-52 feet with an initial production of 750 bbls.

PANHANDLE FIELDS

(Continued from Page 39)

WICHITA FALLS DISTRICT COMPLETIONS
Week Ending March 4

Archer County

Gwynn and Humble Oil & Refining Co.'s No. 1 Birdwell was dry and abandoned at 1,400 feet. Panhandle & Grisham's No. 1 Farmer had a show of oil at 1,533-35 feet but has been abandoned at 1,535 feet. Panhandle & Hive's No. 1 Peeler had a show of oil at 1,529-40 feet but was abandoned at 1,552 feet. The Texas Company's No. 1 Cowan-G was dry and abandoned at 1,189 feet. Burns and Humble Oil & Refining Co.'s No. 1 Wilson found the pay at 1,559-64 feet with an initial production of 86 bbls. Gohlke and others' No. 3 Wilson had an initial production of 65 bbls. from pay topped at 1,561-65½ feet.

Cooke County

Green and others' No. 2 Campbell made 7 bbls. of crude from pay at 718-45 feet.

Grayson County

Miller Drilling Co.'s No. 1 Getzendaner was dry and abandoned at 1,015 feet.

Jack County

Buttram Petroleum Co.'s No. 8 Jones estate had an initial production of 55 bbls. from pay found at 2,050-58 feet.

Montague County

R. I. Carter's No. 1 Boulden topped the pay at 794 feet and bottomed at 823 feet with an initial production of 16 bbls. Carter and Rycade's No. 6 Cunningham has been shut in for a 25,000,000-foot gas well from pay at 714-74 feet. Conoco Oil Co.'s No. 28 Maddox-A had an initial production of 53 bbls. from pay topped at 887½ feet and bottomed at 920 feet. Oil Operators Trust Co.'s No. 4 Bouldin found the pay at 814-34 feet and made 26 bbls. Petroleum Producing Co.'s No. 2 Howard made 20 bbls. from pay at 1,392½-1,426 feet.

Wichita County

C. E. Birk and others' No. 1 Dutton had a show of oil at 1,825½-27 feet, the well tested sulphur water at 1,850 feet and will be abandoned. T. M. Convey reports 12 completions on his H. Willis lease, as follows: No. 1 was completed for 3 bbls. at 251-60 feet; No. 2 found the pay at 110-25 feet and was drilled to a deeper pay at 258-63 feet and is making 10 bbls.; No. 3 is estimated as a 4-bbl. well in pay from 240-48 feet; No. 4 found the first pay at 100-42 feet and was drilled to the pay at 242-51 feet and is estimated as an 8-bbl. well; No. 5 is estimated as a 5-bbl. well from pay found at 263-68 feet; No. 6 was dry and abandoned at 277 feet; No. 7 found the first pay at 116-52 feet and drilled on down to 260-66 feet and is making 4 bbls.; No. 8 found the first pay at 96-109 feet, was drilled to 233-41 feet and is making 3 bbls.; No. 9 is making 3 bbls. from 227-34 feet; No. 10 found the first pay at 119-35 feet, was drilled to the pay at 232-39 feet and is estimated as a 2-bbl. well; No. 11 had a show of oil at 94-114 feet, was drilled to the pay

at 232-39 feet and is estimated as a 2-bbl. well; No. 12 was dry and abandoned at 275 feet.

Grayce Oil Co.'s No. 12 S. M. Daniels was dry and abandoned at 270 feet. Magnolia Petroleum Co.'s No. 137 H. Reilly was dry and abandoned at 2,130 feet. Same company's No. 11 Warren was dry and abandoned at 1,516 feet.

Willis & Crabtree report six completions on their Hiram Willis lease, as follows: No. 1 was estimated as a 3-bbl. well at 238-42 feet; No. 2 was dry and abandoned at 242 feet; No. 3 was estimated good for 4 bbls. at 228-33 feet; No. 4 was estimated good for 3 bbls. at 233-36 feet; No. 5 was estimated good for 2 bbls. at 238-41 feet; and No. 6 was estimated as a 1-bbl. well at 91-105 feet.

G. S. Dudley's No. 4 Kemp & Kempner was estimated as a 15-bbl. producer from pay found at 1,629-31½ feet. Grayce & Cotton's No. 14 Kemp & Kempner found the pay at 786-90 feet and was drilled to the pay at 850-57½ feet and had an initial production of 133 bbls. the first 24 hours. J. C. Jennings and others' No. 1 Burnett made b.s. and sulphur water at 1,488-1,512 feet and was drilled on to the pay at 1,517-24 feet and made a 16-bbl. well. Magnolia Petroleum Co.'s No. 10 R. S. Allen was originally completed April 19, 1912, for 30 bbls. at the total depth of 329-44 feet, the well has been recompleted at the total depth of 598-607 feet and is producing 30 bbls. Same company's No. 12 Watkins had a show of oil at 1,509-14 feet and was drilled on to a dry sand found at 1,534-36 feet and the well had an initial production of 7 bbls. of crude and 2½ bbls. of water. Same company's No. 11 J. A. Watkins-A was deepened and had been abandoned at 1,537 feet. Perkins & Cullum's No. 9 Beaver-Electra was dry and abandoned at 1,650 feet. Vergate Oil Co.'s No. 9-D Watkins was dry and abandoned at 1,085 feet.

Wilbarger County

Fain-McGaha Oil Corp.'s No. 1 Waggoner-P was dry and abandoned at 2,507 feet. The Texas Company's No. 5 Waggoner-B had an initial production of 90 bbls. at 2,365-75 feet.

Young County

Allday Oil Corp.'s No. 2 Johnson topped the pay at 576 feet and bottomed at 586 feet with an initial production of 40 bbls. Same company's No. 3 on the above lease is good for a 130-bbl. well at 566-83 feet. Cunningham's No. 1 Hawkins is producing 240 bbls. from pay at 506-13 feet. Panhandle Oil Co. and Riggs' No. 1 Oatman was dry and abandoned at 603 feet. Pennell Oil Co.'s No. 1 Boone made 225 bbls. at 504-15 feet. Reed & Wooten's No. 1 McKinley made 235 bbls. at 504-18 feet. Same company's No. 1 Stewart was dry and abandoned at 636 feet. Stafford's No. 1 Boone was dry and abandoned at 705 feet. Wolf and others' No. 2 Lowe was abandoned at 880 feet after a showing at 853-55 feet which tested sulphur water. Godley Oil Co.'s No. 3 A. Graham was dry and abandoned at 2,165 feet. Paull Oil Co.'s No. 2 Scarborough was dry and abandoned at 2,245 feet. Seaboard Oil Co.'s No. 2 Ragland was dry and abandoned at 2,262 feet. White's No. 1 Eddleman made 35 bbls. from pay at 2,054-80 feet.

RANGER DISTRICT COMPLETIONS

Week Ending March 4

Brown County

Breeding and others' No. 1 Hickman after 10 and 20-quart shots at 1,240-60 feet made 300 bbls. Central Texas Refining Co.'s No. 3 Allcorn found the pay at 1,125-46 feet and made 60 bbls. Clark-Buffalo Oil Co.'s No. 2 Brown County fee found the pay at 1,081-95 feet and is making 50 bbls. Same company's No. 3 Brown County fee is making 100 bbls. from pay found at 1,080-90 feet. Cranfill & Reynolds' No. 1 Hill flowed 42 bbls. the first 24 hours from pay found at 1,299-1,305 feet. When the well was put on the pump it made 78 bbls. of oil and 150 bbls. of water and the third 24 hours made 54 bbls. of oil and 50 bbls. of water. Davis and others' No. 1 Perry was dry and abandoned at 1,165 feet. Gilman & McMurray's No. 3 Hickman was shot with 20 quarts at 1,246-67 feet and made 700 bbls. in 17 hours.

Lamb and Shaw completed three wells on their Perry lease during the week, as follows: No. 1 was dry and abandoned at 1,110 feet; No. 2 was dry and abandoned at 1,278 feet, and they have abandoned the location for No. 3.

Pandem Oil Co. reports six completions during the past week, as follows: No. 1-A Curry was dry and abandoned at 1,114 feet; No. 5-B Curry made 250,000 feet of gas at 1,095-1,105 feet; No. 6-B Curry was shot with 10 quarts at 1,107-16 feet and made 30 bbls.; No. 3 Hutton found the pay at 1,121-32 feet and is making 35 bbls.; No. 4 Hutton found the pay at 1,172-80 feet and made 50 bbls.; No. 1 Thomason was dry and abandoned at 1,063 feet.

Peckham and others' No. 1 Bush found the pay at 1,109-17 feet and made 100 bbls. Phillips Petroleum Co.'s No. 7 Hickman was shot with 20 quarts at 1,224-66 feet and made 150 bbls. Rex-Pyramid Oil Co.'s No. 16 J. H. Fry was dry and abandoned at 1,480 feet. M. L. Richards' No. 3 Curry made 65 bbls. at 1,105-19 feet. M. L. Richards' No. 1 Hutton was dry and abandoned at 1,200 feet. Sawyer and others' No. 1 Watson made 6,000,000 feet of gas at 1,594-1,607 feet. Syndicate Oil Co.'s No. 3 Curry made 500,000 feet of gas at 1,098-1,100 feet. Westbrook and others' No. 2 Turner was dry and abandoned at 1,472 feet. Hammon & Garrett's No. 1 Matthews was shot with 60, 40 and 80 quarts at 1,272-81 feet and made 5 bbls. of crude and 3 bbls. of water. Lamb & Shaw's No. 3 Gwthney was dry and abandoned at 1,507 feet.

Callahan County

House and others' No. 1 Clinton was dry and abandoned at 520 feet. Parks & Gill's No. 1 Wylie was dry and abandoned at 400 feet. Peer Oil Corp.'s No. 1 Biggerstaff was dry and abandoned at 2,555 feet. Shadbolt & Creighton's No. 2 George was dry and abandoned at 956 feet.

Coleman County

Empire Gas & Fuel Co.'s No. 1 Casey was dry and abandoned at 1,710 feet.

Eastland County

John Hooser's No. 9 Fox was shot with 10 quarts at 1,620-26 feet and made 25 bbls. John Hooser's No. 10 Fox was shot with 15 quarts at 1,610-20 feet and made 30 bbls. Teatsorth and others' No. 4 Citizens Water was dry and abandoned at 1,430 feet. Livingston & Wellman's No. 1 Thompson was shot with 80 quarts at 3,734-80 feet and made 3,000,000 feet of gas.

Palo Pinto County

Cranfill & Reynolds' No. 2 Gilbert was dry and abandoned at 3,863 feet. Texas Pacific Coal & Oil Co.'s No. 156 Stuart was shot with 20 quarts at 1,572-97 feet and made 40 bbls.

Shackelford County

Roeser & Pendleton and Marland Oil Co.'s No. 40-A-48 found the pay at 1,650-55 feet and made 15 bbls. of oil and 7 bbl. of water. Tannehill Oil Co.'s No. 1 Matthews found the pay at 1,140-55 feet and made 372 bbls.

Stephens County

Clark & Hooker's No. 2 McNabb was shot with 30 quarts at 1,890-1,902 feet and made 25 bbls. Texas Pacific Coal & Oil Co.'s No. 72 Binney was shot with 30 quarts at 1,756-77 feet and made 52 bbls.

Carson County

The Texas Company's No. 2 C. R. Garner is making 37,000,000 feet of gas from pay found at 2,250-2,425 feet in lime.

Gray County

Phillips Petroleum Co's No. 2 Jackson-Riley made 26,000,000 feet of gas from pay found at 2,765-75 feet.

Hale County

Tolbert & Simms' No. 1 Kiteral, SE cor. NW Section 65, Block A-3 G.C.&S.F. Survey, was dry and abandoned at 458 feet.

Hutchinson County

Antelope Creek Oil Co.'s No. 2 J. M. Sanford was deepened from the lime at 3,082 feet to the total depth of 3,100 feet, pay was topped at 3,050 feet and production was increased from 5 bbls. oil and 100 bbls. water to 600 bbls. oil and no increase in water.

Wheeler County

Hatcher and others' No. 2 fee, C NE SW Section 80, Block 23, H&G.N. Survey, made 43,000,000 feet of gas at 1,460-75 feet. Mid-Kansas Oil & Gas Co.'s No. 1 J. L. Newton drilled into the lime at 1,790-1,920 feet and made 25,000,000 feet of gas at 405 pounds rock pressure.

REFINERY GASOLINE IN GREATER DEMAND

(Continued from Page 28)

maintain the Seminole Field's production above 250,000 bbls. for many months into the future. The effect of these, however, is given less attention than the developments in the West Texas fields. There, production has already surpassed the present Seminole production and no doubt, is proving to be a major factor in holding fuel oil prices to their present level. With the West Texas Field failing to show as rapid advance as expected, Mid-Continent refiners take this as an indication that that field will not develop to be the depressing factor Seminole has been and look forward to a much improved gasoline market just as soon as the consumption season is entered.

Gasoline and Naphtha

There was a greater movement of all grades of gasoline to domestic buyers but U. S. Motor gasoline was still available at last week's prices. Some went to brokers at 5⅞ cents but these were comparatively few in number and the low for the market in general was 6 cents. The weighted average prices calculated from reports of Oklahoma refiners on sales made Monday are shown as follows:

			Feb. 27	Mar. 5
58-60	437	End point....	.06168	.06178
60-62	437	End point....	.06423	.06597
60-62	400	End point....	.06705	.06674
64-66	375	End point....	.07170	.07125

Small export purchases were made in Oklahoma and North Texas in 60-62 390 endpoint and the 64-66 375 endpoint grades. There were numerous additional export inquiries but refiners were not willing to offer the material at the prices offered. The small amount of 64-66 375 endpoint gasoline sold in Oklahoma is said to have gone at 6⅝ cents.

Natural Gasoline

A slow domestic movement coupled with very little buying for export has forced a freer offering of all grades and prices were quoted lower. Manufacturers are carrying a high margin of stocks and as production in Seminole is maintained at better than 100 cars daily there is little optimism prevailing regarding the market over the immediate future.

Kerosene and Distillates

Kerosene was noticeably stronger from the standpoint of demand but prices were not increased. Stocks have been decreased at most plants as a result of the export shipments over the past month and the market is in a much better position to advance as the spring agricultural demand is increased. Already the effect of these purchases is felt. Distillates are moving very slowly and prices are lower than during the past month. Refiners are selling what stocks remained and price concessions are given as an inducement to take larger volumes.

Gas Oil and Fuels

Gas oil prices have not varied for several weeks and appear to be "pegged" at 2½ cents. Several inquiries have been received for large volumes at 2⅜ cents but during the past week, the market has been well defined at 2½ cents. Fuel prices continue to hold at the higher level established last week but there are widely varying opinions regarding the market over the month. The Oklahoma market has been supported by increased demands from the industrial centers and while fuel is being freely offered in territories outside Oklahoma, refiners here point to the fact that practically all of their production has been contracted for over the month and they will be able to hold spot prices near their present level.

Lubricants and Wax

Cylinder stocks and bright stocks have continued to move very slowly and price concessions are offered on large volumes and for export movement. Neutrals have done no more than hold their own during the past month and the higher consuming season is looked forward to as the only bright factor in allowing prices to advance.

Wax has moved at a good rate, the export market having improved and there is a good movement to domestic users. Refiners anticipate a steady demand but there is considerable buying resistance developed at even slightly higher prices.

Late Fields

(Continued from Page 40)

to the outline of the field proper, but which is separated from the field by a barren stretch some half mile wide.

In the Logan County deep fields, the Sinclair Oil & Gas Co.'s No. 1 Knecht, SW cor. NE, Section 28-18-4w, previously reported as a failure in the Wilcox sand and dry at a total depth of 6,325 feet will be plugged back to 4,200 feet where a show of oil and gas was found in a sand thought to be one of the Hoover group.

GULF COAST

HOUSTON, Tex., Mar. 6.—The steady string of good wells completed at the new East Hackberry Dome, Cameron Parish, Louisiana, was broken Monday when Calcasieu Oil Co.'s No. 2 Watkins drilled into salt at 3,875 feet and was abandoned. This was west of No. 1 Watkins which came in two weeks ago flowing 2,500 bbls. daily. A location which had been made for No. 3 Watkins also has been abandoned but the company has moved back on the south side of Kelso Bayou and is rigging up for No. 3 Caldwell.

Gulf Refining Co. has cemented casing around 1,667 feet in its No. 5 United Land Co. on the Sorrento Dome, Ascension Parish, and will drill plug Wednesday night and bail in Thursday morning. This test is 600 feet due west of the No. 4, the discovery well.

H. R. Cullen brought in his No. 1 Lafferty at Blue Ridge, Fort Bend County, Texas, flowing 1,500 bbls. daily from a total depth of 3,526 feet. This is the second well completed by this operator at Blue Ridge in a week, the other, No. 1 Davidson, making 1,500 bbls. from sand at 3,507 feet.

HENDRICKS POOL GUSHER

FORT WORTH, Tex., Mar. 6.—Cranfill & Reynolds' No. 1-C, T. G. Hendricks, SE SW SW, Section 33, Block 26, gauged 10,000 bbls. the first 19 hours through a 1½-inch choke with 1,100 pounds back pressure. The well is now pinched to 300 bbls. hourly. Atlantic Oil Producing Co. and Collett's No. 1 Hendricks, south offset to Cranfill & Reynolds' No. 1-C, made 2,000 bbls. the first 16 hours through a 1-inch choke with 600 pounds back pressure from a total depth of 2,764 feet.

LUBRICANT ADVANCE EXPECTED ON GULF

HOUSTON, Tex., Mar. 5.—With a record February, usually a dull month, just closed and with March opening with a fairly active export demand, prospects for an advancing lubricating oil market for Gulf Coast refiners during the next few weeks seemed bright Monday.

Although from an actual price standpoint, there were no important changes the past week, the market gained strength due to several substantial export orders. In addition to contract movements, one refiner alone sold 40,000 bbls. of oil. Export grades generally distributed are the 100 viscosity pale, 500 viscosity red and 750 viscosity pale filtered oils but this order was for the 500 viscosity pale.

Business also continued fair with indications of improvement during March, as this month is usually a month in which buyers stock up for spring requirements. Independent and smaller refineries here are fairly well sold up. Fuel oil reflected a tendency to steady in price with the strengthening of north Texas markets, from where considerable cheap material has been shipped in here in competition with coastal products.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 40)

Gulf Prod. Co.'s No. 3 W. N. Waddell, SE cor. NE Sec. 3, Blk. B-25, Public School Land ..... Top lime 3,050 ft.; show oil 3,245-49 ft.; drlg. gray lime 3,415 ft.

J. K. Hughes Dev. Co.'s No. 1 State Bank Commission, CSL Sec. 18, Blk. 4, H. & T. C. Sur. ..... Location.

CROCKETT COUNTY

V. T. Bolin & Co.'s No. 1 P. C. Coates, NW cor. SW Sec. 4, Blk. 2, I. & G. N. Sur. ..... Shut down 2,110 ft.

Dixie Oil Co.'s No. 1 George Thompson, Sec. 72, Blk. 1 .. Location.

J. S. Cosden, Inc., No. 1 Paul Perner, SW cor. Sec. 36, Blk. 2, I. & G. N. Sur. ..... Underreaming pipe 805 ft.

Henshaw and McMann Oil & Gas Co.'s No. 1 W. Owens, C NW Sec. 17, Blk. G.G., G.C.&S.F.R.R. Sur. ..... Drlg. 200 ft.

Humble O. & R. Co.'s No. 2 P. J. Sorg Est ..... Drlg. 2,570 ft.

James Kelly et al's (was Corbett & Gill's) No. 1 Todd, C NE Sec. 43, Blk. WX, G.C.&S.F. Sur. ..... Top salt 993 ft.; show oil 1,943 ft.; 700 ft. sulphur water in hole 2,450 ft.; total depth 2,605 ft.; plugged back to 1,948 ft. and shot 120 qts. 1,909-45 ft.; hole filled 250 ft. with water with slight scum of oil.

Van McPhail's No. 1 George Thompson ..... Location.

Van McPhail et al's No. 1 George Thompson ..... Location.

Osage Oil Corp.'s No. 2 Halff, 1,200 ft. down river from No. 1 in Sec. 70, Blk. 1, I.&G.N. Sur. ..... Total depth 1,040 ft.; shut down.

Osage Oil Co.'s No. 3 H. M. Halff, Sec. 70, Blk. 1, I.& G.N.R.R. Sur. ..... Skidding rig 18 ft. south.; drlg. 200 ft.

W. W. Donnelly & Young's No. 1 Massey, Sec. 29, Blk. U-V ..... Shut down 520 ft.

World Oil Co.'s No. 1 Schneeman-B, Sec. 50, Blk. BB, G.C.&S.F. Sur. ..... Top salt 1,070 ft.; hole full salt water 2,210-15 ft.; set 6-in. 2,540 ft.; drlg. 2,830 ft.; hole full sulphur water; shut down 2,880 ft.

M. B. Wyrick et al's No. 1 H. M. Halff, Sec. 68, Blk. 1, H.&G.N. ..... Shut down 330 ft.

Young & Donelly's No. 1 J. M. Shannon, C Sec. 11, Blk. 9, D.&S.E. Sur. ..... 7,000,000 ft. gas at 1,662 ft.; shut down 1,676 ft.

Young & Donnelly's No. 2 J. M. Shannon, Sec. 18, Blk. 10, G.C.&S.F.R.R. Sur. ..... Location.

CULBERSON COUNTY

Deep Rock Oil Co.'s No. 2 Kloh-Rumsey, Sec. 21, Blk. 29, T.&P. Sur., T-1 (NE of No. 1) ..... Shut down 1,265 ft.

Deep Rock Oil Co.'s No. 1 J. P. Seay ..... Drlg. 1,480 ft.

Hickey & Stiver's No. 1 C. O. Finley ..... Drlg. 660 ft.

Scott & Dittman's No. 1 Miller, SW cor. NW NE Sec. 1, School Blk. 97 ..... Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; run. 8-in. casing 1,767 ft.

ECTOR COUNTY

Pennsylvania Drlg. Co.'s No. 1 W. E. Connell, C NE Sec. 7, Blk. B-16 ..... Location.

Shoup et al's No. 2 C. P. Davis, C Sec. 10, Blk. 42 ..... Material on ground.

EL PASO COUNTY

Ellsworth & Haunt's No. 1 McKinney & Jones ..... Drlg. water well and shut down.

FISHER COUNTY

Cranfill & Reynold's No. 1 J. A. Young, Sec. 208, B.B. B.&C. Sur. ..... Hole full salt water 2,400-35 ft.; drlg. 2,965 ft.

R. W. Raney's No. 2 Maberry, Sec. 56, Blk. 1, T.&P. Sur. ..... Shut down 2,960 ft.

Sinclair Oil & Gas Co.'s No. 1 F. Steele, NW NE NE Sec. 72, Blk. 1, H.&T.C.R.R. Sur. ..... Building rig.

FOARD COUNTY

Clark et al's No. 1 Atkins ..... Lime 1,580-1,930 ft.; show gas 1,885 ft.; underreaming 6-in. 2,865 ft.

Fain-McGaha Oil Corp. and Roxana's No. 2 J. F. Mathews, Blk. 3, G.C.&S.F. Sur. ..... Spudded and shut down.

Marland Oil Co.'s No. 1 J. H. Minnick, C NE Sec. 74, Blk. B, H.&T.C. Sur. ..... Rig.

GARZA COUNTY

Emerald Oil Co.'s No. 1 Boren, NW NE Sec. 137, Blk 5.. Shut down 2,600 ft.

Emerald Oil Co.'s No. 3 Boren, C NW NE Sec. 137, Blk. 5 ..... Top salt 660 ft.; drlg. 2,040 ft.

Gulf Prod. Co.'s No. 1 E. P. Swenson-A, Sec. 67, Blk. 2, H.&G.N. Sur. ..... Top salt 495 ft.; top lime 2,075 ft.; drlg. gray lime 4,825 ft.

Marland Oil Co.'s No. 1 B. F. Pippin, C NW Sec. 1,210, W. C. Young Sur. (3,750-ft. test) ..... Rigging.

GLASSCOCK COUNTY

Texon & Marland's No. 1 Settles ..... Set 10-in. 1,420 ft.; top lime 2,015 ft.; hole full sulphur water 2,710-50 ft.; running 5-in. casing 3,210 ft.

Josey & Finchbaugh's No. 1 S. R. Cox, 1,320 ft. W. of NE cor. and located on the N line of Sec. 29, Blk. 33, Twp. 4s, T.R.R.R. Sur. ..... Location.

Meriwether Oil Co.'s No. 1 L. S. McDowell, CNL Sec. 34, Blk. 34, T-2-S, T.P.R.R. Sur. ..... Rig.

R. R. Penn's No. 1 Hughes & Johnson ..... Location.

HOWARD COUNTY

Bristow & Merrick's No. 1 Dora Roberts ..... Total depth 1,602 ft.; moving star machine.

Bristow & Merrick's No. 5 A. J. Hooks, SE NW N half Sec. 140, Blk. 29, W.&N.W.R.R. Sur. ..... Rotary derrick.

Coyle-Concord Oil Co.'s No. 4 Dora Roberts, Sec. 156, Blk. 29, W.&N.W. ..... Shot 60 qts. 1,850-77 ft.; cleaning out.

Coyle-Concord Oil Co.'s No. 5 Dora Roberts, Sec. 156, Blk. 29, W.&N.W. ..... Location.

F. H. E. Oil Co.'s No. 1 Dora Roberts, SW NE Sec. 136, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 1,250 ft.

F. H. E. Oil Co.'s No. 3 Dora Roberts-A, 1,170 ft. S and 1,210 ft. W NE cor. Sec. 156, Blk. 29, W.&N.W. ..... Location.

F. H. E. Oil Co.'s No. 4 Dora Roberts-A, 1,170 ft. S and 1,710 ft. S and 1,710 ft. W NE cor. Sec. 156, Blk. 29, W.&N.W. ..... Location.

Green O. & R. Co.'s No. 1 H. R. Clay, SE cor. Sec. 127, Blk. 29, W.&N.W. Sur. ..... Running 16½-in. casing 80 ft.

Henshaw et al's No. 1 W. R. Settles, SW SE SW Sec. 135, Blk. 29 ..... Hole full sulphur water 1,335-50 ft.; show oil 2,250-65 ft.; fish. bit 2,290 ft.

Lockhart et al's No. 2 Dora Roberts, Sec. 157, Blk. 29, W.&N.W. ..... Material on ground.

Magnolia Pet. Co.'s No. 7 Dora Roberts, SW NE SW Sec. 136, Blk. 29, W.&N.W. ..... Location.

Marland Oil Co.'s No. 1 Clay-E, NW NE SE Sec. 138, Blk. 29 ..... Pay 2,480-2,500 ft.; swabbed appro. 160 bbls.; hole full salt water 3,360-70 ft.; total depth 3,656 ft.; plugged back to 2,960 ft.; tested 5 ballers oil 2,480-2,920 ft.; shot 100 qts. 2,880-2,920 ft.; tested 10 bbls. oil and 12 bbls. water; plugged back to 2,575 ft.; to pump; pumped 65 bbls. first 24 hrs. from 2,480-2,520 ft.

Marland Oil Co.'s No. 1 Richardson, C NW Sec. 12, Blk. 32, T.&P. Sur., T-1-S ..... Top salt 370 ft.; hole full salt water 2,235-2,300 ft.; hole full sulphur water 2,790-2,800 ft. and 3,010 ft.; pulling pipe to abandon 3,613 ft.

Mays, Nixon & Flowers' No. 1 W. J. Flowers ..... Little salt at 976-97 ft.; top salt 1,114 ft.; drlg. 2,090 ft.

Merrick & Lamb's No. 4 H. R. Clay, CSL SE NE Sec. 126, Blk. 29, W.&N.W. ..... Location.

Miley and Marland Oil Co.'s No. 1 C. D. Read, C NW Sec. 12, Blk. 31, T.&P. Sur., T-1-N ..... Spudded and shut down 5 ft.

Owen & Sloan's No. 3 Dora Roberts, Sec. 136, Blk. 29 .... Pumped 40 bbls. first 18 hrs. 1,322-32 ft.

Owen & Sloan's No. 4 Dora Roberts, Sec. 136, Blk. 29.... Location.

Sun Oil Co.'s No. 1 W. R. Settles, Sec. 135, Blk. 29 ..... Top lime 2,030 ft.; swabbed 420 bbls. first 4 hrs. 2,530-40 ft.

Sprague Oil Co.'s No. 1 Dora Roberts ..... Spudded and shut down.

Sweeney et al's No. 3 Chalk, Sec. 124, Blk. 29 ..... Location.

Sweeney et al's No. 4 Chalk, Sec. 124, Blk. 29 ..... Location.

Tate-Weekley & Tubbs' No. 3 Dora Roberts, NE cor. Sec. 156, Blk. 29, W.&N.W.R.R. Sur. ..... Cem. 6-in. 1,596 ft.

Tate-Weekley & Tubbs' No. 4 Dora Roberts, Sec. 156, Blk. 29, W.&N.W.R.R. Sur. ..... Rig.

Texon O. & L. Co. and Marland Oil Co.'s No. 1 Mrs. Connaly, NE cor. Sec. 15, Blk. 33, T.&P. Sur., T-1-N.. Top salt 1,425 ft.; hole full salt water 1,760-1,800 ft.; show oil 3,065 ft.; hole full sulphur water 3,500-55 ft.; hole full water 3,925-50 ft.; show oil 4,125-36 ft.; preparing to plug 4,400 ft.

Texon O. & L. Co. and Marland Oil Co.'s No. 2 W. R. Settles ..... Shut down for storage; sand at 1,280-84 ft.; total depth 1,298 ft.

Texon & Marland's No. 2 W. R. Settles-A ..... Rig; drlg. water well.

Weekly Oil Corp. et al's No. 1 Dora Roberts, Sec. 156, Blk. 29 ..... Drlg. 1,600 ft.

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart and Roseborough, C SE Sec. 5, School Blk. 21 ..... Shut down 180 ft. (cor. depth); to start up soon.

Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, T.&P. Sur., T-6 ..... Shut down for socket 1,175 ft.; 1,000,000 ft. of inflammable gas at 1,130 ft.; straightening hole 1,375 ft.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 ..... Shut down 1,000 ft.

IRION COUNTY

P. E. Hill's No. 1 Horney, NE cor. Sec. 2, Blk. 3, H.& T.C. Sur. ..... Hole full water 720-40 ft.; show of oil in sand 1,270 ft.; shut down.

F. E. Webb et al's No. 1 J. M. Nutt ..... Spudded and shut down 125 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means ..... Shut down 2,600 ft.

Humble O. & R. Co.'s No. 2 Crecencio Flores, 1,130 ft. N and 850 ft. E of SW cor. Sec. 34, Blk. 58, T.&P. Sur., Twp. 8 ..... Drlg. 3,975 ft.

JONES COUNTY

Garland & Diamond's No. 1 E. D. Glynn, SE cor. Sec. 18, Deaf & Dumb Asylum Lands ..... Drlg. 2,550 ft.

Hutson & Weaver's No. 1-A Smith ..... Pumping from pay at 2,498-2,538 ft.

Phillips Petroleum Co.'s No. 5 Joe Winters, NE cor. NW Sec. 19, Blk. 19, T.&P.R.R. Sur. ..... Rig.

Rhodes & Highers' No. 1 E. Howell, Sec. 20, Blk. 19, T.&P. Sur. ..... Drlg. 600 ft.

J. N. Sloan and others' No. 1 W. C. Bennett, NW cor. SW SE Sec. 42, Orphan Asylum Land ..... Spudded and shut down.

W. G. Stough and others' No. 1 J. P. Willis, J. C. Patterson Sur. No. 2 ..... Shut down 1,740 ft.

KENT COUNTY

Marland and Texon's No. 1 Bilby ..... Top salt 610 ft.; drlg. 1,122 ft.

KNOX COUNTY

Deep Rock Oil Co.'s No. 1 Moore ..... Drlg. 1,000 ft.

Deep Rock Oil Co.'s No. 1 Big Four, 1,270 ft. S and 2,500 ft. W of NE cor. Sec. 31, Blk. 4 ..... Shut down 3,512 ft.; may deepen to 4,000 ft.

LOVING COUNTY

Delaware Oil Co.'s No. 1 Lockhart & Ramsey ..... Shut down 650 ft.

Lockhart Bros.' No. 1 fee, Sec. 85, Blk. 33, H.&T.C. Sur. ..... Fishing 2,260 ft.; may skid derrick.

Owens & Sloan's No. 1 W. D. Johnson, C SE Sec. 20, Blk. 53, T-2, T.&P. Sur., elev. 2,934 ..... Top salt 955 ft.; half baller sulphur water per hr. 3,600 ft.; water exhausted; drlg. 4,200 ft.

LYNN COUNTY

Elpo Oil Co.'s No. 1 Nevols, NW cor. Sec. 6, Blk. C-42, School Lands ..... Shut down 675 ft.

Hart Oil Corp.'s No. 1 C. O. Edwards A-1 ..... Shut down 576 ft.

MENARD COUNTY

Carpenter & Robbins' No. 1 Kothman, NW cor. SW SW Sec. 22 ..... 165 ft. 34-6 grav. oil at 414-15 ft.; fishing 415 ft.

J. C. Barnett and T. H. Drake's No. 1 Callan City Co. Ranch, Sec. 22 ..... Drlg. 523 ft.

May & Clark's No. 1 Collen, Sec. 22, B.S.&F. ..... Shut down 505 ft.

Renfro et al's No. 1 J. Davis ..... Shut down 260 ft.

MIDLAND COUNTY

Gholson et al's (was Orbit Oil Co.'s) No. 1 Moreland, C SE Sec. 17, Blk. 39, T.&P. Sur., T-1-S ..... Top salt 1,910 ft.; drlg. 2,120 ft.

Shoup et al's No. 1 Roy Parks ..... Spudded and shut down.

MITCHELL COUNTY

Boehm Drilling Co.'s No. 1 Harry Hyman, C NW SE Sec. 90, Blk. 29, W.&N.W. Sur. ..... Shut down 505 ft.

California Oil Co.'s No. 3 C. M. Adams, Lease No. 2, CSL NE NW Sec. 11, Blk. 28, Twp. 1n, T.&P.R.R. Sur.... Location.

Magnolia Oil Co.'s No. 5 Foster, Sec. 17, Blk. 29, T.&P... Drlg. 1,520 ft.

Paul Teas et al's No. 1 A. C. Mills, NW cor. C. A. O'Keefe Sub. 11, J. P. Smith Sur. ..... Total depth 1,766 ft. (s.l.); plugged back to 1,650 ft.; shot 200 qts. 1,550-1,640 ft.; cleaning out.

Robert Thraves' No. 1 C. Way, Sec. 91, Blk. 27, T.&P. Sur., T-1-N ..... Total depth 2,503 ft.; shut down.

PECOS COUNTY

Benedum & Trees' No. 1 B. T. Corder ..... Rig.

Bob Elmore's No. 2 Holmes, SE cor. Sec. 45, Blk. 1, I.&G.N. Sur. ..... Top salt 435 ft.; shut down 640 ft.

Buell & Hagan's No. 1 Pryor & Wilson, Sec. 15, Blk. 5 .. Drlg. 180 ft.

Diamond Pet. Co.'s No. 1 Blackstone & Slaughter ..... Location.

M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 8, H.&G.W. Sur., elev. 2,555 ft. ..... Shut down 640 ft.

Furman Oil Co.'s No. 1 T. W. McNear, Jr., Sec. 46, Blk. 9 ..... Location.

Everett et al's No. 1 J. Fields ..... Spudded and shut down.

Gibson Oil Corp.'s No. 1 R. R. Russell, Sec. 69, Blk. 3, C.C.S.D.&R.G.N.G. Sur. ..... Drlg. 1,915 ft.

George A. Henshaw et al's No. 1 B. T. Corder, C SW Sec. 74, Blk. 2, C.C.S.D. Sur. ..... Top salt 1,130 ft.; shut down 2,517

Kershaw & Livingston's No. 1 Cannon, Sec. 54, Blk. A-2.. Drlg. 1,365 ft.; top salt 1,050 ft.; shut down 2,000 ft.

Mid-Kansas O. & G. Co.'s No. 1 Pryor & Wilson, NW cor. Sec. 3, Blk. 5, T.C.R.R. Sur. ..... Drlg. 360 ft.

Miller & McNees' No. 1 W. C. Tyrrell ..... Cellar.

Phillips Pet. Co.'s No. 1 Nutt, SE cor. Sec. 8, Blk. 125 ... Location.

B. J. Spikes' No. 1 George Brown ..... Shut down 625 ft.; cleaning out.

Rowan & Tong's No. 1 Scharff & Blackman, Sec. 4, Blk. 9 ..... Rig.

Roxana Pet. Corp. and Kirby Pet. Co.'s No. 1 University, Sec. 23, Blk. 26 ..... Moving in rig.

Stidham & Thrasher's No. 1 Belgrade Ranch Co., Sur. 3, Mrs. S. Tompkins A-4,695 ..... One baller sulphur water per hr. 1,310-15 ft.; drlg. 1,500 ft.

Transcontinental Oil Co.'s No. 1 Blackstone & Slaughter, Sec. 29, Blk. 129, St. L. Sur., elev. 3,539 ft. ..... 250 ft. sulphur water in black sand 1,150-80 ft.; small show oil 1,510 ft.; show gas 1,540 ft.; show oil 2,080 ft.; brown sand 3,560-70 ft.; 250,000 ft. gas at 3,565 ft.; to abandon at 4,988 ft.

Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18 ..... Shut down 420 ft.

Vacuum Oil Co.'s No. 1 Elsinore Cattle Co., Sec. 60, Blk. D, G.C.&S.F. Sur. ..... Drlg. 1,000 ft.

World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 45, Twp. 8, T.P.R.R. Sur., elev. 2,810 ft. ..... Underreaming 915 ft.
World Oil Co.'s No. 1 Serf, C NE Sec. 10, Blk. 130, T.&St.L. Sur., elev. 3,435 ft. ..... Drlg. 1,365 ft.

Yates Pool, Pecos County

Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 6 River Bed ..... Rig.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 8 River Bed ..... Hole full of fluid, 35 per cent water; shut down 1,095 ft.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 9 River Bed ..... Location.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 12 River Bed ..... Setting 6-in. casing 1,020 ft.; hole full of oil 1,110 ft.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 13 River Bed ..... Location.
Pandem Oil and Gibson Oil Co.'s No. 14 River Bed ..... Location.
Pandem Oil and Gibson Oil Co.'s No. 15 River Bed ..... Location.
California Co.'s No. 2 Yates, Sec. 34, Blk. 194 ..... Rig.
California Oil Co.'s No. 14 I. G. Yates, Lease 1, Sec. 34, Blk. 194 ..... Drlg. 930 ft.
California Oil Co.'s No. 15 I. G. Yates, Lease 1, Sec. 34, Blk. 194 ..... Drlg. 90 ft.
California Oil Co.'s No. 16 I. G. Yates, Lease 1, Sec. 34, Blk. 194 ..... Rig.
California Co.'s No. 10 Smith, Lease 3 ..... Shut down 1,030 ft.
California Co.'s No. 11 Smith, Lease 3 ..... Drlg. 1,241 ft.
California Co.'s No. 12 Smith, Lease 3 ..... Drlg. 1,184 ft.
Day Bros. & McKnight's No. 1 Yates, NW cor. Sec. 58, Blk. 1 ..... Top salt 440 ft.; 1,000,000 ft. gas 1,255 ft.; shut down 1,400 ft.; flowing sulphur water.
Douglas Oil Co.'s No. 2 J. T. Sellman ..... Hole full salt water 795-860 ft.; 25 ft. sulphur water 1,614-15 ft.
Gulf Prod. Co.'s No. 8 I. G. Yates, Runnels Co. School Land No. A-2,169 ..... Pumped 285 bbls. 11 hrs. from sand 405-49 ft. showing 17 per cent b.s. and water which treats out 18-gravity oil; casing off and drlg. hard lime 600 ft.
Humble O. & R. Co.'s No. 7 M. A. Smith, SW cor. NW Sec. 36, Blk. 194 ..... Rig.
Kirby Petroleum Co.'s No. 1 J. H. Tippett, CWL E half W half Sec. 40, Blk. 194 ..... Rig.
McDonald et al's No. 1 A. A. Parsell, C NW SE Sec. 28, Blk. A, G.C.&S.F.R.R. Sur. ..... Drlg. 100 ft.
McMan and Marland's No. 16 Yates ..... Rig.
Marland Oil Co.'s No. 11 Yates-A ..... Location.
Marland Oil Co.'s No. 12 Yates-A ..... Location.
Marland Oil Co.'s No. 13 Yates-A ..... Location.
Michaelson & Tabot's No. 1 River Bed ..... Spudded and shut down.
Mid-Kansas and Transcontinental's No. 14 Yates-A, Sec. 33, Blk. 194, G.C.&S.F. Sur. ..... Waiting on machine.
Mid-Kansas and Transcontinental's No. 15 Yates-A ..... Shut down 1,066 ft.
Mid-Kansas and Transcontinental's No. 16 Yates-A ..... Drlg. 1,150 ft.
Mid-Kansas and Transcontinental's No. 17 I. G. Yates-A, Sec. 31, Blk. 194 ..... Location.
Mid-Kansas and Transcontinental's No. 12 Yates-B, Sec. 61, Blk. 1 ..... Drlg. 1,270 ft.; flowing by heads.
Mid-Kansas and Transcontinental's No. 18 Yates-B ..... Show oil 1,095 ft.; flowed sulphur water 1,108 ft.; plugged back to 1,087 ft.; 400 ft. water; 300 ft. oil in hole.
Mid-Kansas and Transcontinental's No. 19 Yates-B ..... Top pay 1,118 ft.; shut down 1,310 ft.; flowed 1,807 bbls. in 9 hrs. through 1 4-in. line.
Mid-Kansas and Transcontinental's No. 22 Yates-B ..... Drlg. 789 ft.
Mid-Kansas and Transcontinental's No. 6 Yates-C ..... Rigging up.
Mid-Kansas and Transcontinental's No. 10 Yates-C ..... Location.
Mid-Kansas and Transcontinental's No. 1 Yates-F ..... Top pay 1,152 ft.; drlg. 1,249 ft.; flowed 125 bbls. 24 hrs.
Mid-Kansas and Transcontinental's No. 1 I. G. Yates-G, Sec. 34½, Blk. 194 ..... Location.
Mid-Kansas and Transcontinental's No. 2 M. A. Smith ..... First oil and gas show 1,095 ft.; top pay 1,110 ft.; shut down 1,245 ft.; flowing 97 bbls.
Mid-Kansas and Transcontinental's No. 9 Smith-Taylor ..... Waiting on machine.
Mid-Kansas and Transcontinental's No. 10 Smith-Taylor ..... Top pay 1,264 ft.; drlg. 1,390 ft.; flowing by heads.
Mid-Kansas and Transcontinental's No. 11 Smith-Taylor ..... Set 6-in. casing 1,180 ft.; shut down 1,265 ft.
Mid-Kansas and Transcontinental's No. 12 Smith-Taylor ..... Top pay 1,310 ft.; flowed 1,542 bbls. in 11 hrs.; drlg. 1,400 ft.
Mid-Kansas and Transcontinental's No. 13 Smith-Taylor ..... Drlg. 600 ft.
Mid-Kansas and Transcontinental Co.'s No. 14 Smith-Taylor, Sec. 33, Blk. 194, G.C.&S.F.R.R. Sur. ..... Rig.
Oregon Oil Corp.'s No. 1 Yates ..... Shut down 835 ft.
Phillips Pet. Co.'s No. 1 Mrs. M. A. Smith, Sec. 39, Blk. 194, G.C.&S.F. Sur. ..... Top pay 1,255 ft.; est. 200 bbls. daily; drlg. 1,371 ft.; flowing by heads.
Skelly Oil Co.'s No. 1 J. H. Tippett, Runnels County School Land A-2,169, Sec. 108, Blk. 194, G.C.& S.F.R.R. ..... Drlg. 445 ft.

PRESIDIO COUNTY

Headlock & Miller's No. 1 Tootle Est., Sec. 122, Blk. 3, D.&P. Sur., elev. 2,912 ft. ..... Salt water 2,610 ft.; total depth 3,003 ft.; shut down for orders.
Pinto Canyon Oil Co.'s No. 1 Fields, 1,760 ft. S and E NW cor. Sec. 74, Blk. 2, D.&P. Sur. ..... Location.

REAGAN COUNTY

California Oil Co.'s No. 4 University, NW cor. Sec. 3, Blk. 7 ..... Drlg. 735 ft.
Hagan & Emch's No. 1 E. W. Loftin, C E half Sec. 1,271, D.&S.E. Sur. ..... Top salt 1,065 ft.; drlg. 1,800 ft.
Marland Oil Co.'s No. 1 University, SE cor. SW Sec. 26, Blk. 8 ..... Drlg. 400 ft.
Moody Oil Co.'s No. 1 R. A. Walters ..... Rig.
Roxana Pet. Co.'s No. 1 Sawyer Cattle Co., 3,000 ft. S of CNL Sec. 15, Blk. A, R. Casey Sur. ..... Rig.
Skelly Oil Co.'s No. 2 University, SE SW SE Sec. 35, Blk. 8 ..... Location.
The Texas Company's No. 3 J. D. Sugg, C Sec. 165, Blk. 2, T.&P.R.R. Sur. ..... Drlg. 600 ft.
Texon O. & L. Co.'s No. 1-B University, Group 1 ..... Top pay 6,250 ft.; 2,000 ft. oil; shut down in black lime and shale 7,665 ft.
White et al's No. 1 Shofner & Sterling, NE cor. NW Sec. 10, 2 m. N of Big Lake ..... Top salt 1,275 ft.; hole full fresh water 2,155 ft.; run 8-in. 2,175 ft.; cleaning out 2,490 ft.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ..... Show oil 1,105-10 ft.; hole full sulphur water 1,600 ft.; water shut off; shut down anhydrite 1,930 ft. for repairs.
Grisham-Hunter Corp.'s No. 1 Rathge & Connor, 600 ft. from N line and 5,760 ft. from W line of Sec. 26, Blk. 2, H.&G.N. ..... Top salt 1,037 ft.; drlg. 1,090 ft.
David R. Thompson's No. 1 A. A. Eddins ..... Total depth 5,130 ft.; shut down; to drill deeper.
Vacuum Oil Co.'s No. 1 Grisham-Hunter ..... Set 15½-in. casing 533 ft.; set 12¼-in. 1,025 ft.; shut down 1,400 ft.
World Oil Co.'s No. 1 Biggs, C SE Sec. 65, W. N. Holder Sur. ..... Show sulphur water 2,770 ft.; slight show oil 2,578 ft.; drlg. sand and shale 2,785 ft.
World Oil Co.'s No. 1 Duff, 1,500 ft. from S and 850 ft. from NE lines, R. S. Johnson Sur. No. 68, elev. 2,774 ft. ..... Top Delaware lime 4,185 ft.; hole full brackish salt water 4,362-4,500 ft.; plugged back to 4,237 ft.; shot 70 qts. 4,135-4,235 ft.; little oil in hole; shut down 4,500 ft.; moved tools to No. 1 Biggs.

RUNNELS COUNTY

Empire G. & F. Co.'s No. 1 C. C. Gray, Sec. 147, E.T.R.R. Sur. ..... Hole full fresh water 2,250-57 ft.; small show oil 2,460-90 ft.; cleaning out 2,540 ft.
Gibson & Johnson's No. 1 Harris Est., Juliana Voske Cabrera Sur. ..... Location.
Gibson & Johnson's No. 1 H. P. Serratt, C SE NW Sec. 150, E.T.R.R. Sur. ..... Underreaming 1,570 ft.
Globe Oil Co.'s No. 1 J. H. Webb ..... Straightreaming 1,385 ft.
Jones Oil Syndicate's No. 1 W. Hale ..... Fish, pipe 1,905 ft.
Jones Oil Syndicate's No. 1 W. Hale (Runnels), NE cor. Sub. 29, Sec. 109, E.T.R.R. Co. Sur. ..... New location.
McLean et al's No. 1 G. W. Clayton ..... Shut down 1,050 ft.
Marland Oil Co.'s and E. L. Smith Oil Co.'s No. 1 A. C. Herring, C Sec. 121, E.T.R.R. Sur. (3,000-ft. test) .... Drlg. 1,000 ft.
Marland Oil Co.'s No. 1 R. R. Russell, near CSL J.F.G. Sur. ..... Building rig.
Kennedy et al's No. 1 J. E. Tally ..... Shut down 1,720 ft.
May et al's No. 1 J. M. Schneider, John Wall Sur. ..... ½ baller salt water 1,033 ft.; hole full water 1,100-20 ft.; fishing 1,770 ft.
Miles Oil Co.'s No. 1 Charles Ray, Sec. 21, T.&N.O. Sur. ..... Cellar and machine.
Miles Oil Co.'s No. 1 L. S. Lawhon, NE cor. Sec. 68. .... Show gas 960-80 ft.; shut down for 6-in. 2,310 ft.
Royal Pet. Co.'s No. 1 A. C. Willingham ..... Preparing to run 10-in. 1,410 ft.
Silfix Pet. Co.'s No. 1 Malone ..... Location.
R. B. Summers et al's No. 1 J. W. Reese, M. J. Parramore Sur. No. 26 ..... Drlg. 420 ft.
Swensondale Oil Co.'s No. 1 E. A. Werner ..... Hole full water 2,000 ft.; Drlg. 2,183 ft.
Vacuum Oil Co., Lou Ladd et al's No. 1 J. S. Flanagan, NW cor. subdivision No. 29, Domingo Diaz Sur. ..... Location.
Vacuum Oil Co. et al's No. 1 H. B. Fowler, subdivision No. 23, Domingo Diaz Sur. ..... Location.
Watchorn O. & G. Co.'s No. 1 J. L. King ..... Hole full salt water. 1,633-91 ft. Shut down 2,727 ft.

SCHLEICHER COUNTY

Beavers & Leath et al's No. 1 J. A. and W. T. Whitten, C NW Sec. 35, Blk. 11, T.O. Sur. ..... Shut down 400 ft.

SCURRY COUNTY

J. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur. ..... Rig.

STERLING COUNTY

Orr et al's (to be taken over by Empire G. & F. Co.) No. 1 Neal Reed, CNL Sec. 15, Blk. 30, W.&N.W Sur. ..... Shut down 1,390 ft. (cor.).

SUTTON COUNTY

National Potash Co.'s No. 1 J. N. Ross ..... Coring lime 991 ft; (no report).

TAYLOR COUNTY

A. J. Brown et al's No. 1 Henslee, NE cor. Sec. 5, Blk. 4, S.P.R.R. Sur. ..... Shut down 2,935 ft.
Dorning & Perrine's No. 1 J. A. Hammer, C N 100 acres, Sec. 23, Blk. 19, T.&P. Sur., elev. 1,904 ft. .... Shut down 455 ft.
Gilbert Johnson and Day Bros.' No. 1 C. M. Brown, Sec. 1, Blk. 6, T.&P. Sur. ..... Hole full water 2,170-2,220 ft.; cased off; drlg. 2,675 ft.
Owen & Sloan's No. 1 Lattimer, Sec. 14, Blk. 9, T.&P. Sur. ..... Shut down 2,325 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett ..... Location.
Champlin Ref. Co.'s No. 1 Corder, C Sec. 110, Blk. 1, C.C.S.D. Sur. ..... Set 15½-in. 625 ft.; drlg. 1,510 ft.
Deep Rock Oil Co.'s No. 1 H. C. Nolke, Sec. 4, Blk. A-2, T.C.R.R. Sur. ..... Underreaming 1,090 ft.
Humble Oil Co.'s No. 1 University, Sec. 15, Blk. 34 ..... Drlg. 1,330 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.&R.R. Sur. ..... Location.
Milham Exploration Co.'s No. 1 Bassett, Sec. 77, Blk. Y, W. H. Robertson Sur. ..... Run. 8-in. 1,788 ft.; fish. 2,409 ft.
Bryan and Breen's No. 1 Allison & Burke, C NW Sec. 10, Blk. 176, Texas-Mex. R.R. Sur. ..... Location.
Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.R.G.&N.G.R.R. Sur. ..... Rig.

TERRY COUNTY

Kingsland O. & P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur. ..... Drlg. 3,765 ft.

TOM GREEN COUNTY

George Amery's No. 1 Wilkey, C SW Sec. 3, B.A.L. Sur. ..... Location.
Collins et al's No. 1 Jones, CSL Sec. 646, Shaffer Sur. .... Rig.
Cox et al's No. 1 Llano ..... Shut down 610 ft.
Fitzgerald & Taliaferro's No. 1 Bennett ..... Trying to shut off water 1,920 ft.
Lone Eagle Oil Co.'s No. 1 Sharp, SE W Elzel Sur. No. 167 ..... Rig.
Marland Oil Co.'s No. 1 J. W. Johnson, C SE Sec. 6, R. B. Sanderson Sur. ..... Hole full water 2,020-45 ft.; shut down 3,500 ft.
Marland Oil Co.'s No. 1 J. W. Johnson-A ..... Fishing 3,130 ft.; setting 6-in. casing 3,173 ft.; drlg. 3,310 ft.
Tulsa Oil Co.'s No. 1 Adams, C SW Sec. 163, Blk. 11, S.P.R.R. Sur. ..... Shut down 1,020 ft.
Haubelt et al's No. 1 Johnson ..... Location.
Haubelt et al's No. 2 Johnson ..... Shut down 1,201 ft.
World Oil Co.'s No. 1 Mrs. F. T. March ..... Location.
World Oil Co.'s No. 2 Pulliam, Sec. 25, Blk. 4, H.&T.C. Sur., elev. 1,823 ft. ..... Set 8-in. casing 655 ft. and shut down.

UPTON COUNTY

Mark Curtis et al's (was Hultz et al's) No. 2 Giddings, 5,336 ft. S and 6,678 ft. E of NW cor. Throckmorton C. School Land, League 1, elev. 2,757 ft. ..... Shut down 975 ft.
The Texas Company and Cordova Union's No. 1 Union Land, Sec. 23, Blk. 35, H.&T.C. ..... Top pay 2,098 ft.; swabbed 60 bbls. in 36 hrs. at 2,271 ft., 2 per cent water; 2,200 ft. sulphur water 2,390-2,405 ft.; total depth 3,201 ft.; plugged back to 2,350 ft. and lost baller; fishing.
Wise & Jackson's No. 1 J. H. Porter, SW cor. SW SW Sec. 184, Blk. E, elev. 2,592 ft. ..... Top pay 3,419 ft.; total depth 3,517 ft., gray lime; shut down.

VAL VERDE COUNTY

A. Blume et al's No. 1 Moore Est., Sec. 183, J. Mitchell Sur., elev. 963 ft. ..... Shut down 3,000 ft.
Curso Williams' No. 1 Holman, NE NE Sec. 5, Blk. N, G.H.&S.A. Sur. ..... Shut down 2,940 ft.
East Del Rio Oil Co.'s No. 1 Russell, SE cor. Sec. 183, Del Rio Town Sur., elev. 941 ft. ..... Total depth 3,190 ft.; shut down.
Magnolia Pet. Co.'s No. 1 Whitehead, Sec. 81, D.G.C. &S.F. Sur., elev. 1,770 ft. ..... Drlg. 6,300 ft.
Independent Operator's No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 3,900 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.
W. B. Thraves et al's No. 1 W. E. Wilson ..... Shut down 905 ft.

WARD COUNTY

Alfredo Del Cambre's No. 1 Lee Monroe, Sec. 50, Blk. 33, H.&T.C. Sur. ..... Spudded and shut down.
E. H. Devore et al's No. 1 Black, Sec. 214, Blk. 34, H.&T.C. Sur. ..... Spudded and shut down.
Estex Oil Co.'s No. 1 W. A. Estes, Sec. 4, Blk. B-29, 3,500-foot test ..... Location.
Great Basin Oil Co.'s No. 1 Davis, C SW S half Sec. 32, Blk. 1, H.&G.N. ..... Cellar.
Selby Oil Co. et al's No. 1 A. G. Dooley et al, Sec. 85, Blk. A, G.M.M.&A. Sur. ..... Rigging up rotary 500 ft.

WINKLER COUNTY

Amerada Pet. Corp.'s No. 1 J. B. Walton, SW cor. NW Sec. 48, Blk. 26, elev. 2,833 ft. ..... Rerun 8-in.; water shut off; making 15,000,000 ft. gas and slight spray oil; drlg. cavings 2,440 ft.

Atlantic O. P. Co.'s No. 2 Grisham-Hunter-A, Sec. 34,

Blk. B-5 ..... Shot 480 qts. 2,850-2,999 ft.; total depth 2,985 ft.; shot 960 qts. 2,800-2,991 ft.; no results; cleaning out 3,000 ft.

Atlantic O. P. Co.'s No. 5 Grisham-Hunter-"A", SW NE SW Sec. 34, Blk. B-5 ..... Top salt 1,610 ft.; drlg. 1,964 ft.

Atlantic O. P. Co.'s No. 6 Grisham-Hunter, NW cor. SE SW Sec. 34, Blk. B-5 ..... Top salt 1,400 ft.; drlg. 1,890 ft.

Atlantic O. P. Co.'s No. 7 Grisham-Hunter-A, NE SE E half, SW Sec. 34, Blk. B-5 ..... Cellar.

Atlantic O. P. Co.'s No. 8 Grisham-Hunter-A, SE NE E half SW Sec. 34, Blk. B-5 ..... Cellar.

Atlantic O. P. Co.'s No. 2 Grisham-Hunter-E, NW cor. Sec. 41, Blk. B-5 ..... New location.

Atlantic O. P. Co.'s No. 3 Grisham-Hunter-"E", CNL N half NE Sec. 41, Blk. B-5 ..... Location.

Atlantic O. P. Co.'s No. 4 Grisham-Hunter-E, SE NE NE Sec. 41, Blk. B-5 ..... Shut down 709 ft.

Atlantic O. P. Co.'s and Collett's No. 3 Hendrick-F, NW NE NW Sec. 40, Blk. 46 ..... Fishing for bit 1,062 ft.

Atlantic and Collett's No. 4 Hendrick-F, NE NW Sec. 40, Blk. 26 ..... Location.

Atlantic O. P. Co.'s No. 1 Grisham-Hunter-C (was Lemar) SW cor. Sec. 40, Blk. B-5 ..... Total depth 2,978 ft.; gas pressure split connections; est. 75,000,000 ft. gas; running wild; trying to kill gas; top salt 1,573 ft.; top lime 2,200 ft.

Atlantic O. P. Co.'s No. 3 Ida Hendricks-D, NW SE NW Sec. 29, Blk. B-5 ..... Drlg. 1,140 ft.

Atlantic O. P. Co.'s No. 4 Ida Hendricks-D, NE SW NW Sec. 29, Blk. B-5 ..... Drlg. 560 ft.

Atlantic O. P. Co.'s No. 5 Ida Hendricks-D, SW SE S half NW Sec. 29, Blk. B-5 ..... Material.

Atlantic O. P. and Collett's No. 1 Ida Hendricks-F, NE cor. W half NW Sec. 40, Blk. 26 ..... Show gas 2,522 ft.; set 8-in. casing 2,685 ft.; 1 5-bbl. head and 5,000,000 ft. gas; drlg. 2,742 ft.

Atlantic O. P. and Collett's No. 2 Ida Hendricks-F ..... Top salt 1,984 ft.; top lime 2,458 ft.; shut down 2,465 ft.

V. T. Bolin et al's No. 1 Brown ..... Drlg. 318 ft.

Cranfield & Reynolds' No. 2 Hendricks-C, SW SE SW Sec. 33, Blk. 76 ..... Top salt 1,795 ft.; drlg. 1,825 ft.

Danciger et al's No. 1 John Sealy, SW cor. NE Sec. 93, Blk. A, G.M.M.B.&A. Sur. ..... Location.

Gibson-Johnson's No. 1 Lack, C SW Sec. 3, Blk. 74 ..... Top salt 1,980 ft.; drlg. 2,530 ft.

Gulf Prod. Co.'s No. 2 T. G. Hendricks, NE NW NW Sec. 34, Blk. B-5 ..... Rig standing.

Gulf Prod. Co.'s No. 8 T. G. Hendricks, Sec. 34, Blk B-5.. Show oil and gas in lime 2,433 ft.; top lime 2,480 ft.; standardizing 2,486 ft.

Gulf Prod. Co.'s No. 9 T. G. Hendricks, Sec. 34, Blk. B-5.. Top salt 1,837 ft.; top lime 2,558 ft.; drlg. 2,585 ft.

Gulf Prod. Co.'s No. 10 T. G. Hendricks, SW cor. NE Sec. 45, Blk. 26 ..... Top salt 1,973 ft.; top lime 2,331 ft.; drlg. 2,615 ft.

Gulf Prod. Co.'s No. 11 T. G. Hendricks, Sec. 34, Blk. B-5.. Top salt 1,635 ft.; drlg. 2,365 ft.

Gulf Prod. Co.'s No. 12 T. G. Hendricks, Sec. 34, Blk. B-5.. Drlg. 1,235 ft.

Gulf Prod. Co.'s No. 13 T. G. Hendricks, Sec. 40, Blk. B-5.. Top salt 1,340 ft.; top lime 2,244 ft. drlg.

Gulf Prod. Co.'s No. 15 T. G. Hendricks, C NW SW NW Sec. 40, Blk. B-5 ..... Drlg. 380 ft.

Humble O. & R. Co.'s No. 1 J. B. Walton-B, SE cor. Sec. 32, Blk. 26 ..... Drlg. 745 ft.

Humble O. & R. Co.'s No. 1 J. B. Walton-A, NW cor. N half Sec. 47, Blk. 26 ..... Derrick.

Humble O. & R. Co.'s No. 1 J. B. Walton-A, NW cor. Sec. 48, Blk. 26 ..... Derrick.

Humble O. & R. Co.'s No. 2-A, Sec. 34, Blk. B-5 ..... Top salt 1,340 ft.; top lime 2,228 ft.; shut down 2,500 ft.

Humble O. & R. Co.'s No. 3 Grisham-Hunter, Sec. 34, Blk. B-5 ..... 5,000,000 ft. gas from 2,195 ft.; spraying 100 bbls. 2,896 ft.; killing well to deepen; total depth 2,898 ft.; shut down.

Humble O. & R. Co.'s No. 6 Grisham-Hunter ..... Top salt 1,720 ft.; drlg. 2,470 ft.

Humble O. & R. Co.'s No. 7 Grisham-Hunter ..... Top salt 1,240 ft.; drlg. 2,364 ft.

Humble O. & R. Co.'s No. 8 Grisham-Hunter ..... Top salt 1,340 ft.; drlg. 2,326 ft.

Humble O. & R. Co.'s No. 9 Grisham-Hunter, NE NE Sec. 34, Blk. B-5 ..... Cellar.

Humble O. & R. Co.'s No. 11 Grisham-Hunter, SW cor. W halfNW Sec. 41, Blk. B-5 ..... Location.

Humble O. & R. Co.'s No. 4 Ida Hendricks-B, SE N half SE Sec. 29, Blk. B-5 ..... Top salt 1,300 ft.; drlg. 2,050 ft.

Humble O. & R. Co.'s No. 5 Ida Hendrick-"B", NW NE SE Sec. 29, Blk. B-5 ..... Top salt 1,353 ft.; drlg. 1,435 ft.

Humble O. & R. Co.'s No. 6 Ida Hendrick-"B", NE NW SE Sec. 29, Blk. B-5 ..... Drlg. 1,011 ft.

Independent O. & G. Co.'s No. 3 Grisham-Hunter, SE NW SW Sec. 34 ..... Drlg. 1,069 ft.

Independent O. & G. Co.'s No. 4 Grisham-Hunter, NE SW SW Sec. 34 ..... Top salt 1,460 ft.; drlg. 2,320 ft.

Independent O. & G. Co.'s No. 1 Vardeman-B, SE cor. E half NW Sec. 41, Blk. B-5 ..... Top salt 1,775 ft.; top pay 2,575 ft.; total depth 2,743 ft.; 8,931 bbls. in 24 hrs.; pinched.

Independent O. & G. Co.'s No. 3 Vardeman-B, SE NE NW Sec. 41, Blk. B-5 ..... Top salt 1,340 ft.; top lime 2,435 ft.; drlg.

Independent O. & G. Co.'s No. 4 Vardeman-B, SW cor. E half NW Sec. 41, Blk. B-5 ..... Top salt 1,552 ft.; drlg. 2,318 ft.

Independent O. & G. Co.'s No. 5 Vardeman-B, NW SE NW Sec. 41, Blk. B-5 ..... Drlg. 759 ft.

Independent O. & G. Co.'s No. 1 E. W. Cowden, SE NW NW Sec. 36, Blk. B-5 ..... Total depth 2,425 ft.; tools stuck 180 ft. off bottom.

Liner Drlg. Co.'s No. 1 Seth-Campbell, NE cor. Sec. 2, Blk. B-5 ..... Shut down 450 ft.

Landreth and Roxana's No. 1 Hendricks-A, SE cor. SW Sec. 29, Blk. B-5 ..... Top salt 1,395 ft.; top lime 3,661 ft.; drlg. 3,084 ft.

Landreth and Roxana's No. 2 Ida Hendricks-A, Sec. 29, Blk. B-5 ..... Top salt 1,440 ft.; drlg. 2,671 ft.

Landreth and Roxana's No. 5 Ida Hendrick-A, NW NE SW Sec. 29, Blk. B-5 ..... Rigging up rig.

Llano Oil Co.'s No. 1 F. B. Armstrong, at common cor. Secs. 12, 13, 18 and 19, Blk. B-6, School Land ..... Location.

Marland Oil Co.'s No. 1 T. G. Hendricks, SE cor. W half Sec. 33, Blk. 26 ..... Moving in material.

Marland Oil Co.'s No. 2 T. G. Hendricks, NE SE SE Sec. 33, Blk. 26 ..... Cellar.

Marland Oil Co.'s No. 3 T. G. Hendricks, NE SE SW Sec. 33, Blk. 26 ..... New location.

Magnolia Pet. Co.'s (was G. M. Church et al's) No. 2 Ida Hendricks ..... Show oil 2,750 ft.; top pay 2,865 ft.; total depth 2,961 ft.; ran 5-in. with packer to 2,955 ft.; failed to shut off water; plugging back.

Magnolia Pet. Co.'s No. 3 Ida Hendricks ..... Top lime 2,423 ft.; drlg. 2,792 ft.

Magnolia Pet. Co.'s No. 5 Ida Hendricks ..... Top salt 1,624 ft.; top lime 2,509 ft.; total depth 2,915 ft.; flowing 300 bbls., 90 per cent water; waiting orders.

Magnolia Pet. Co.'s No. 6 Ida Hendricks, Sec. 29, Blk. B-5 ..... Top salt 1,430 ft.; top lime 2,420 ft.; top pay 2,750 ft.; drlg. 2,792 ft.

Magnolia Pet. Co.'s No. 7 Ida Hendricks ..... Top lime 2,448 ft.; drlg. 2,700 ft.

Magnolia Pet. Co.'s No. 8 Ida Hendricks ..... Top salt 1,510 ft.; drlg. 2,470 ft.

Murchison Oil Co. et al's No. 1 Grisham-Hunter-B, NE cor. SW SW Sec. 35, Blk. B-5 ..... Top salt 1,335 ft.; shut down 2,427 ft.

Murchison Oil Co. et al's No. 2 Grisham-Hunter-B ..... Location.

Murchison Oil Co. et al's (was Marland Oil Co.'s) No. 4 Grisham-Hunter-B ..... Top lime 2,500 ft.; top salt 1,394 ft.; fishing 2,975 ft.

Mining & Engineering Co.'s No. 1 T. G. Hendricks, Sec. 10, Blk. B-12 ..... Drlg. 1,210 ft.

Murchison Oil Co. and Cranfill Bros.' No. 2 Grisham-Hunter-A ..... Location.

Murchison Oil Co. and Cranfill Bros.' No. 4 Grisham-Hunter ..... Location.

Pure Oil Co.'s No. 4 Hendricks ..... Top lime 2,402 ft.; setting 8¼-in. casing 2,404 ft.

Pure Oil Co.'s No. 5 Hendricks ..... Top salt 1,643 ft.; top lime 2,461 ft.; shut down 2,471 ft. for casing.

Pure Oil Co.'s No. 1 Hendricks-B, NE cor. SE Sec. 34, Blk. B-5 ..... Show gas 2,350-60 ft.; show oil 2,330 ft.; 15,000,000 ft. gas at 2,490 ft.; more gas 2,564 ft.; 40,000,000 ft. gas at 2,720 ft.; rigging cable tools 2,731 ft.

Pure Oil Co.'s No. 4 Hendricks-B ..... Shut down 2,405 ft.; top lime 2,404 ft.

Pure Oil Co.'s No. 5 Hendricks-B, SE SW SE Sec. 34, Blk. B-5 ..... 8-in. casing 2,422 ft.; total depth 2,431 ft.; top lime 2,420 ft.

Pure Oil Co.'s No. 6 Hendricks-B ..... Top salt 1,315 ft.; top lime 2,388 ft.; shut down 2,390 ft.

Pure Oil Co.'s No. 7 Hendricks-B, NE SE SE Sec. 34, Blk. B-5 ..... Location.

Pure Oil Co.'s No. 8 Hendricks-B, SE NE SE Sec. 34, Blk. B-5 ..... Location.

Pure Oil Co.'s No. 9 Hendricks-B, NW NE SE Sec. 34, Blk. B-5 ..... Building rig.

Pure Oil Co.'s No. 10 Hendricks-B, NE NW SE Sec. 34, Blk. B-5 ..... Moving in material.

Pure Oil Co.'s No. 11 Hendricks-B, SW NW SE Sec. 34, Blk. B-5 ..... Moving in material.

Pure Oil Co.'s No. 12 Hendricks-B, NW SW SE Sec. 34, Blk. B-5 ..... Moving in material.

Pure Oil Co.'s No. 1 Grisham-Hunter-C ..... Cem. crevice 1,418 ft., 1,200 sacks; drlg. 1,893 ft.

Pure Oil Co.'s No. 6 Grisham-Hunter, NW SW Sec. 41, Blk. B-5 ..... Rigging.

Republic Prod. Co.'s No. 1-A Grisham-Hunter-B, SW cor. E half SE Sec. 41, Blk. B-5 ..... Top salt 1,240 ft.; top lime 2,135 ft.; standardizing 2,390 ft.

Republic Prod. Co.'s No. 3 Grisham-Hunter-B, NE cor. SE Sec. 41, Blk. B-5 ..... Top lime 2,197 ft.; total depth 2,980 ft.; killing gas.

Republic Prod. Co.'s No. 4 Grisham-Hunter-B, NW cor. E half SE Sec. 41, Blk. B-5 ..... Cem. 15-in. casing 326 ft.

Republic Prod. Co.'s No. 2 Hendricks-A, NE E half SW Sec. 45, Blk. 26 ..... Top salt 1,240 ft.; top lime 2,135 ft.; fishing 2,302 ft.

Republic Prod. Co.'s No. 1 Hendricks-B, SW NE NE Sec. 42, Blk. B-5 ..... Building rig.

Roxana Pet. Corp.'s No. 2 Grisham-Hunter-A, SE cor. E half NW Sec. 45, Blk. 26 ..... Top lime 2,351 ft.; total depth 2,746 ft.; initial prod. 700 bbls.

Roxana Pet. Corp.'s No. 3 Grisham-Hunter-B ..... Drlg. 2,783 ft.

Roxana Pet. Corp.'s No. 2 Grisham-Hunter-C, SE cor. N half NW Sec. 29, Blk. B-5 ..... Top salt 1,405 ft.; showed oil 2,880-83 ft., 2,910-14 ft. and 2,919-36 ft.; top pay 2,948 ft.; total depth 2,989 ft.; flowed 320 bbls. per hr. open, 33 per cent water; pinched to 3,540 bbls., 8 per cent water; plugged back to 2,943 ft.; flowing 180 bbls. daily.

Roxana Pet. Corp.'s No. 6 Ida Hendricks-C, SW SE N half NW Sec. 29, Blk. B-5 ..... Drlg. 293 ft.

Roxana Pet. Corp.'s No. 7 Ida Hendricks-C, SE SW N half NW Sec. 29, Blk. B-5 ..... Drlg. 364 ft.

Roxana Pet. Corp.'s No. 3 Grisham-Hunter-D ..... Cem. 8¼-in. casing 2,237 ft.; drlg. 2,446 ft.

Roxana Pet. Corp.'s No. 4 Grisham-Hunter-D, NE cor. S half NE Sec. 41, Blk. B-5 ..... Top salt 1,230 ft.; drlg. 2,173 ft.

Roxana Pet. Corp.'s No. 5 Grisham-Hunter-D, SE SW NE Sec. 41, Blk. B-5 ..... Cellar.

Roxana Pet. Corp.'s No. 6 Grisham-Hunter-D, SW SE NE Sec. 41, Blk. B-5 ..... Cellar.

Roxana Pet. Corp.'s No. 1 Grisham-Hunter-E ..... Shut down 600 ft.

Roxana Pet. Corp. and Llano Oil Co.'s No. 2 W. F. Scarborough, SW cor. NE Sec. 1, Blk. C-22, School Land ..... Drlg. 550 ft.; top salt 1,120 ft.; top lime 2,670 ft.; drlg. 2,755 ft.

Sheldon & Burden's No. 1 Ida Hendricks, SW cor. SE Sec. 28, Blk. B-5 (10-a. tract) ..... Top salt 1,260 ft.; top lime 2,609 ft.; top pay 2,719 ft.; small increase 2,914 ft. and 2,973 ft.; shot 30 qts. 3,049-57 ft.; second shot 2,888-2,914 ft.; third shot 100 qts. 2,759-85 ft.; hole bridged; cleaning out.

Skelly Oil Co.'s No. 1 Hendricks, NW cor. W half NE Sec. 40, Blk. 26 ..... Building rig.

Southern C. O. P. Co.'s No. 2 Ida Hendricks T-88-B ..... Total depth 2,659 ft.; cem. 6-in. in lime; drlg. 3,008 ft.

Southern C. O. P. Co.'s No. 2 T-89 Grisham-Hunter-A, Sec. 35, Blk. B-5 ..... Standardizing 2,301 ft.; shut down.

Southern C. O. P. Co.'s No. 3 T-89-A Grisham-Hunter-A.. Shut down 2,352 ft.

Southern C. O. P. Co.'s No. 4 T-89-A Grisham-Hunter-A.. Location; rotary moved away.

Southern C. O. P. Co.'s No. 1 Ida Hendricks, 3-T-67-A, C SW NW NE Sec. 4, Blk. B-12, elev. 2,784 ft. ..... Top lime 2,638 ft.; slight show oil 3,000-08 ft.; filled up 1,500 ft. sulphur water at 3,066-72 ft.; plugged back to 3,050 ft.; water now shut off; shut down waiting orders.

Southern C. O. P. Co.'s No. 2 T-67-A, NE SE Sec. 42, Blk. B-5 ..... Shut down 1,592 ft.

Southern C. O. P. Co.'s No. 2 Ida Hendricks 3-T-67-A.... Total depth 2,805 ft.; straightening hole; drlg. 2,760 ft.

Southern C. O. P. Co.'s No. 1 Ida Hendricks, T-67-E, SE NE Sec. 42, Blk. B-5 ..... Drlg. 1,317 ft.

Southern C. O. P. Co.'s No. 2 T-67 Ida Hendricks-F .... Top salt 1,715 ft.; cem. 6-in. 2,207 ft.; shut down 2,240 ft.

Southern C. O. P. Co.'s No. 3 T-67 Ida Hendricks-F .... Top salt 1,702 ft.; top lime 2,688 ft.; drlg. 2,963 ft.

Southern C. O. P. Co.'s No. 4 T-67 Ida Hendricks-F .... Top salt 1,800 ft.; top lime 2,700 ft.; drlg. 2,836 ft.

Southern C. O. P. Co.'s No. 5 T-67 Ida Hendricks-C .... Cem. 6-in. 2,643 ft.; drlg. 2,760 ft.

Southern C. O. P. Co.'s No. 2 T-67 Hendricks-B ..... Top salt 1,866 ft.; setting 6-in. 2,658 ft.

Southern C. O. P. Co.'s No. 1 T-67 Hendricks-3-B ..... Cem. 8-in. casing 2,506 ft.

Southern C. O. P. Co.'s No. 2 T. G. Hendricks, T-67-3B, NE SW SW Sec. 33, Blk. 26 ..... Drlg. 2,120 ft.

Southern C. O. P. Co.'s No. 2 Hendricks 3-T-68-A ..... Top lime 2,280 ft.; 50,000,000 ft. gas; tools out; shut in 2,730 ft.

Southern C. O. P. Co.'s No. 3 Hendricks 3-T-68-A ..... First gas 2,400 ft.; 8,000,000 ft. gas 2,420 ft.; total depth 2,420 ft.; rigging to deepen.

Southern C. O. P. Co.'s No. 1 T-88 Ida Hendricks-C, NW cor. Sec. 28, Blk. B-5 ..... 6,000,000 ft. gas 2,665 ft.; top pay 2,883-96 ft.; 500 ft. oil; total depth 2,915 ft.; fishing 3 strings tools.

Southern C. O. P. Co.'s No. 4 Ida Hendricks, T-88-C .... Top salt 1,290 ft.; top lime 2,535 ft.; drlg. 2,935 ft.

Southern C. O. P. Co.'s No. 1 Ida Hendricks, T-88-G, SW SE Sec. 28, Blk. B-5 ..... Top lime 2,612 ft.; rigging up standard tools 2,613 ft.

Southern C. O. P. Co.'s No. 1 T-88 Hendricks-F ..... Top salt 1,290 ft.; top lime 2,693 ft.; drlg. 2,963 ft.; spraying oil.

Southern C. O. P. Co.'s No. 2 T-88 Hendricks-H ..... Top salt 1,232 ft.; total depth 2,700 ft.; setting 8-in. casing.

Southern C. O. P. Co.'s No. 3 Ida Hendricks, T-88-H, SW NW SW Sec. 28, Blk. B-5 ..... Top salt 1,275 ft.; drlg. 2,185 ft.

Southern C. O. P. Co.'s No. 2 T-88 Hendricks-A ..... Cem. 6-in. 2,713 ft.

Southern C. O. P. Co.'s No. 1 Ida Hendricks, T-88-I, SE

cor. E half NE Sec. 30, Blk. B-5	Top lime 2,670 ft.; top salt 1,810 ft.; top pay 2,940 ft.; flowing 1,548 bbls. daily; drlg. 3,032 ft.
Southern C. O. P. Co.'s No. 2 Ida Hendricks, T-88-I, SE NE E half NE Sec. 30, Blk. B-5	Cellar.
Southern C. O. P. Co.'s No. 3 Ida Hendricks, T-88-I, NE SE E half NE Sec. 30, Blk. B-5	Cellar.
Southern C. O. P. Co.'s No. 1 T. G. Hendricks, T-88-K, NE cor. Sec. 41, Blk. 26	Drlg. 153 ft.
Southern C. O. P. Co.'s No. 1 E. G. Hutchings, T-90, NE cor. E half SE Sec. 47, Blk. 26, elev. 2,835 ft.	Top salt 935 ft.; top lime 2,340 ft. Drlg. 2,597 ft., hard lime.
Texon O. & L. Co.'s No. 2 Grisham-Hunter-A	5,000,000 ft. gas 2,260-2,500 ft.; 15,000,000 ft. gas 2,646-56 ft.; total depth 2,725 ft.; rig was wrecked when gas blew tools out of hole; est. 200,000,000 ft.; repairing rig; trying to lubricate 2,725 ft.
Texon O. & L. Co.'s No. 3 Grisham-Hunter-A, NW cor. W half SE Sec. 41, Blk. B-5	Top salt 1,150 ft.; fishing bit 2,539 ft.
Texon O. & L. Co.'s No. 4 Grisham-Hunter-A, NE cor. W half SE Sec. 41, Blk. B-5	Rig.
Texon O. & L. Co.'s No. 1 Grisham-Hunter-B, NW cor. W half SW Sec. 45, School Blk. 26	1½ bailers salt water hr. at 2,725 ft.; top pay 2,863 ft.; top lime 2,559 ft.; flowing 2,900 bbls. 24 hrs.; drlg. 2,915 ft.
Texon O. & L. Co.'s No. 2 Grisham-Hunter-B, NE W half SW Sec. 45, Blk. 26	Top pay 2,810 ft.; total depth 3,155 ft.; top pay 2,915 ft.; shot 370 qts. 2,942-3,022 ft.; initial prod. 150 bbls. hr.
Turman & Maxwell's No. 4 Ida Hendricks	Top lime 2,555 ft.; top pay 2,755 ft.; drlg. 3,030 ft.; making small heads.
Turman & Maxwell's No. 5 Hendricks, SE cor. E half NE Sec. 29, Blk. B-5	Drlg. 2,600 ft.
Turman & Maxwell's No. 6 Hendricks, NW cor E half NE Sec. 29, Blk. B-5	Top salt 1,217 ft.; top lime 2,471 ft.; drlg. 2,670 ft.
Turman & Maxwell's No. 8 Hendricks	Top salt 1,260 ft.; cem. 6-in. 2,355 ft.; shut down 2,575 ft.
White Eagle O. & R. Co.'s (was Gibson & Johnson's) No. 1 P. A. Lock, 1,320 ft. W of NE cor. Sec. 30, Blk. 74, NW of discovery well, elev. 2,830 ft.	Total depth 3,260 ft.; shut down; pulled 5 3/16-in. casing to run 6⅝-in. casing by tools.

CO-OPERATIVE RESEARCH PLANNED BY REFINERS

(Continued from Page 29)

tions. By adding 15 to 25 per cent to the price of gasoline these taxes, he said, also tend to restrict the consumption of gasoline.

In reviewing the work of the Association, Mr. Miskell said that the past year had been exceptionally favorable, the membership having increased until it now represents approximately 80 per cent of the independent refining industry in the Mid-Continent area. He highly commended the work of Howard Bennette, managing director, and the staff of the Association.

Government Co-operation

With the present attitude of the agencies of the national government the oil industry does not need to fear unwarranted interference in its co-operative efforts to stabilize its various activities, according to Fayette B. Dow, Washington counsel of the Association. In presenting his annual report Mr. Dow reviewed several developments of the past year in governmental matters which are of direct and indirect importance to the refining industry. Speaking of the work of the Committeee of Nine, he said that the oil industry was being given every encouragement to place its house in order.

In regard to congressional action relative to the pollution of waters, which is of particular importance to the refining industry, Mr. Dow said that he was not expecting the passage of any laws during the present session of Congress. He spoke of the work of the American Petroleum Institute, which is endeavoring to solve this pollution problem through co-operative action within the industry before unfavorable legislative action develops.

Price Posting Suggested

The posting of a tank car price in the same manner that crude oil prices or service station prices are established was suggested as a possible solution to the present unsatisfactory method of handling refinery sales in the discussion which followed the presentation of the report of the marketing committee at the morning session. The new plan had the active support of R. R. Irwin, vice president of the White Eagle Oil & Refining Co., Kansas City, and Roy B. Jones, president of the Panhandle Producing & Refining Co. of Wichita Falls. It was suggested that the refiners who are the most active in the tank car markets should post a price for their products and then refuse to sell under this established quotation.

Mr. Jones said that the refiners in the North Texas area had given considerable thought to the plan and could see no objection to its practical application if the support of a sufficient number of operators could be secured. No action was taken in the matter other than authorizing the president to appoint a committee to further investigate its feasibility.

In a lengthy report C. L. Henderson, chairman of the marketing committee, reviewed the efforts that have been made to bring about market conditions in gasoline which would be fairer to the refineries. The committee commended the plan of publications which are now publishing weighted average prices on certain grades of gasoline in place of a high and low price. The committee stated that the weighted average prices were an accurate gauge of market conditions and tended to do away with sharp fluctuations.

In discussing the present marketing practices as they apply to refinery sales of gasoline to jobber customers the committee presented statistics tending to show that the present market was largely established by sales which represent 4.3 per cent of the total shipments. As a remedy for this condition the committee recommended that more material be moved on the spot market. The committee also presented statistics and charts showing the relationship between refinery output and prices. In this connection the report stressed the importance of keeping refinery output in line with the demand, thus preventing the accumulation of surpluses which are always a demoralizing factor in the tank car market.

Suggested Basis for Sales

Mr. Henderson explained in detail a plan which the committee worked out as a basis for both spot and contract sales to their jobber customers. This plan has what is termed a gasoline factor which is based on the gasoline service station prices in 30 representative cities of the Middle West and a crude oil factor based on the posted price of 36 gravity crude oil in the Mid-Continent area. The plan provides for twice the posted per gallon price for crude oil as the minimum refinery price with an agreed differential between the gasoline and crude oil factors as the actual selling price. It was stated that this plan, had it been in operation during the past year, would have netted the Oklahoma refiner about eight-tenths of a cent per gallon more than he obtained by basing it on the published open market quotations.

Bennette Re-elected

At a meeting of the new board of directors this afternoon, Howard Bennette was again elected managing director for his fifth year with the association. M. E. Griffith of the Tulsa office of the association was elected treasurer. The board also elected to the executive committee, in addition to the president and three vice presidents, C. L. Henderson, John L. Gray, F. W. Burford, Edgar J. Marston and L. R. Crawford.

Tribute to J. J. McGraw

The Western Petroleum Refiners Association in its annual meeting here through formal resolution expressed the great sorrow of the membership in the sudden passing of James J. McGraw of Tulsa. Several of the association members were in attendance at the funeral services at Tulsa and Ponca City. In the resolution to be sent to the family of Mr. McGraw he was described as "Oklahoma's outstanding business man, Tulsa's most useful citizen, the Southwest's greatest banker and the refining industry's wisest counselor."

SHREVEPORT MARKETS ARE STRENGTHENING

SHEVEPORT, La., Mar. 5.—Continued strengthening of the refined oil market in this territory is indicated by suggestion of one of the largest refining organizations that it may add an eighth of a cent to gasoline during the next week or 10 days. Last week the chief competitor of this organization, an El Dorado refiner, made the same hint, but neither has yet taken the initiative. All plants are booked up and some of them are in the market for material to fill their orders.

The advance last week in Oklahoma fuel oil has not had any reaction here, but a raise or at least a stabilization at $1 or a few cents more, is expected. During the past few weeks the price has been 97½ cents to $1 with refiners busily hunting an outlet and in Arkansas Smackover has been quoted at 90 cents. The list as a whole shows no change.

WILBUR OFFERS BILL ON NAVAL RESERVES

WASHINGTON, D. C., Mar. 3.—Secretary Wilbur has asked Congress to enact legislation declaring it "to be the policy of the United States to maintain and conserve and develop the naval petroleum reserves and oil shale reserves."

At the same time he transmitted a draft of the desired legislation which, among other things, would declare "that it is necessary for the national defense that the United States shall have an adequate reserve supply of petroleum and petroleum products for use in time of war for national emergency."

In an accompanying letter he explained that the bill also would provide that no reserve petroleum products placed in storage should be "issued for use or otherwise disposed of except in time of war or national emergency declared by the President, unless necessary in the judgment of the Secretary of the Navy to avoid deterioration, or when the President deems unreasonable the prices quoted for supplying petroleum products for current naval purposes."

DEATH OF "CAL" WRIGHT

J. H. Wright, known throughout the Oklahoma Field as "Cal" Wright, a wealthy and respected oil man, died at his home in Sapulpa, Okla., last week. Mr. Wright opened the Kelleyville Field in Creek County, in 1914, and last year was brought into prominence when he drilled deeper on one of his properties in the old field and opened a new and rich producing horizon. At the time of his death his properties were yielding around 500 bbls. a day of settled and semisettled production.

GETS VENEZUELA HOLDINGS

NEW YORK, Mar. 3.—Plans are under way whereby Standard Oil Co. of New Jersey will acquire a controlling interest in Creole Syndicate, according to announcement by the Standard company.

It is contemplated that Creole Syndicate and Standard Oil Co. of New Jersey will merge their interests in Venezuela, Standard acquiring a controlling interest in the Creole Syndicate and transferring to Creole Syndicate all of the holdings in Venezuela of its subsidiaries. Under the plan Standard will be obligated to furnish $8,000,000 cash and working capital.

LEGAL

TRIBAL OSAGE OIL LEASES AT PUBLIC AUCTION
March 28 and 29, 1928.
By United States Government

March 28 and 29, 1928, at Pawhuska, Oklahoma, about 90,000 acres will be offered for oil leases in quarter section tracts. Bids will be for bonus in addition to royalties, 25% payable on day of sale, balance in three annual installments, with acceptable security. Within advertised area there are about 9,875 oil wells producing from one barrel to 2,000 barrels each, the total daily production for December, 1927, being about 58,200 barrels; also there are about 85 wells drilling. All lands are now leased separately for gas. Blue print maps of area advertised, showing tracts producing oil or gas, can be had for fifty cents each, also logs of producing oil or gas wells for twenty-five cents each well. Write U. S. Superintendent, Osage Agency, Pawhuska, Oklahoma, for maps, logs or other information.

TANK WAGON PRICE TREND UPWARD

(Continued from Page 131)

	Prices Feb. 1	February Changes		Prices Mar. 1	High and Low 1927		High and Low 1926		Tax Mar. 1 1928
Newark, N. J.	16.0	....	....	16.0	19.0	16.0	19.0	15.0	2.0
Albuquerque, N. Mex.	16.0	....	....	16.0	20.0	16.0	26.5	20.0	5.0
New York N. Y.	17.0	....	....	17.0	22.0	17.0	21.0	17.0	...
Charlotte, N. C.	16.0	....	....	16.0	19.0	16.0	19.5	15.5	4.0
Fargo, N. Dak.	12.0	....	23 15.9	15.9	20.9	12.0	21.0	18.9	3.0
Cleveland, Ohio	14.0	....	....	14.0	19.0	14.0	20.0	16.0	3.0
Tulsa, Okla.	10.0	....	27 13.0	13.0	15.0	10.0	17.0	13.0	3.0
Portland, Ore.	14.5	....	....	14.5	14.5	11.0	16.0	13.0	3.0
Philadelphia, Pa.	16.0	....	....	16.0	19.0	12.0	20.0	17.0	†3.0
Providence, R. I.	17.0	....	....	17.0	22.0	17.0	21.0	17.0	2.0
Charleston, S. C.	15.0	....	....	15.0	19.0	15.0	19.5	15.0	5.0
Huron, S. Dak.	14.5	....	....	14.5	19.5	11.5	20.5	14.0	4.0
Memphis, Tenn.	14.0	....	....	14.0	15.0	10.0	18.5	13.5	3.0
Dallas, Tex.	9.0	....	....	9.0	13.0	10.0	17.0	13.0	3.0
Salt Lake City, Utah	16.5	....	....	16.5	20.5	16.5	22.5	18.5	3.5
Burlington, Vt.	17.0	....	....	17.0	22.0	17.0	21.0	18.0	3.0
Norfolk, Va.	16.0	....	....	16.0	18.0	16.0	19.0	15.0	4.0
Washington, D. C.	16.0	....	....	16.0	19.0	16.0	19.0	15.0	2.0
Charleston, W. Va.	16.0	....	....	16.0	18.0	16.0	19.0	15.0	4.0
Milwaukee, Wis.	13.1	....	....	13.1	18.1	13.1	19.1	16.1	2.0
Casper, Wyo.	14.0	....	....	14.0	18.0	14.0	20.0	17.0	3.0
Seattle, Wash.	14.5	....	....	14.5	14.5	11.0	16.0	13.0	2.0
Minneapolis, Minn.	11.0	....	3 12.0	12.0	15.2	11.0	20.2	15.2	2.0
Average price	14.33	....	....	14.69	18.15	13.55	19.717	15.713	3.00

*Effective March 1.
†State tax 2 cents, remainder city tax.
Based on dumps of 50 gallons within the Standard Oil Co. of Indiana territory where quantity discounts are given. Actual tank wagon prices in the territory are 1 cent higher except in Chicago.

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McDONNELL & BRANNEN, Bolivar, N. Y.
HARRIS SUPPLY CO., Wellsville, N. Y.
MITCHELL & GRAHAM, Emlenton, Pa.
G. A. BLAIR & SONS CO., Clintonville, Pa.
SLICKER PIPE & TOOL COMPANY, Knox, Pa.
LAWRENCEVILLE MACHINE COMPANY, Lawrenceville, Ill.

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New Martinsville	Waynesburg	Wellsville	Lawrenceville
Charleston	Emlenton	Bolivar	
Hundred	Clintonville	OHIO	
Clarksburg	Knox	Woodsfield	
	Bradford		

Sales Representative and Research Engineer
G. H. KLINGLER, Emlenton, Pa.

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Of Interest to Sales Departments

BRITISH CONSUMPTION TWO BILLION GALLONS

By Charles E. Kern

WASHINGTON, D. C., Mar. 3.—During 1927 British consumption of liquid petroleum products including crude showed an increase of about 137,000,000 gallons over 1926. The entire British consumption of liquid petroleum products in 1927 was approximately 1,640,000,000 imperial gallons, or nearly 2,000,000,000 American gallons.

This information is contained in a report by Trades Commissioner Homer S. Fox at London, and it shows the establishment of a new high record for petroleum consumption in the United Kingdom according to Mr. Fox's statement.

"One of the principal features of the trades was the larger proportion of the home requirements which was supplied by domestic refineries," states Mr. Fox in referring to this British consumption of liquid petroleum products.

"Total petroleum imports, exclusive of crude, amounted to 1,386,500,000 imperial gallons, which was only about 10,800,000 gallons higher than the corresponding imports of 1926. Imports of 664,800,000 gallons of crude, however, showed an increase of 127,400,000 gallons, or 24 per cent, over 1926, and as domestic exports of refined oils registered a further small decline the whole of this large increase in crude oil receipts found its way, after refining into local consumption.

"Further, re-exports of imported refined oils in 1927 exceeded the figure of the preceeding year by about 6,500,000 gallons, which, added to the decrease in domestic exports, almost exactly balances the increase in the imports of these products, so that in effect the growth in consumption was practically entirely met by increased imports of crude locally refined. Thus, although the 1927 imports of mineral oils, other than crude, actually reached a new high level, there appears to have been a resumption of the tendency, interrupted in 1926, to supply an increasing share of consumption of petroleum products. About 253,000,000 gallons of bunker fuel oil were supplied at British ports to vessels engaged in foriegn trade, this figure being almost identical with the corresponding shipments in 1926.

"Among other features of general interest in the British petroleum trade during 1927 were the further substantial growth in gasoline consumption accompanied by a decline in prices to prewar levels or below, increased imports of American oil products, the controversy over the sale of Russian products both within Great Britian and in connection with sales in other countries, a generally lower level of prices over the whole range of major products, and continued depression in the Scottish shale oil industry. In connection with the last named, the quantity of shale oil refined in 1925 amounted to 50,210,000 imperial gallons, according to figures published by the Board of Trade, while in 1926 only 39,860,000 gallons were run to the refineries, and there was doubtless a further decline in 1927.

"British consumption of gasoline in 1927 was probably in the neighborhood of 730,000,000 imperial gallons (876,000,000 American gallons), which represents an increase of nearly 10 per cent over the preceeding year, the same percentage of increase being shown in the registration of motor vehicles. Imports of 545,000,000 gallons of gasoline (including spirit other than motor spirit) were less than those in 1926 by about 18,000,000 gallons, or 3 per cent. Total shipments, however (exports plus re-exports), were also down by 13,000,000 gallons, and local production is estimated to have increased by about 33 per cent, the output being probably 230,000,000 gallons."

Short Talks on Refinery Products

By W. T. Ziegenhain

How Kerosene Is Made

Like gasoline, kerosene may be distil'ed direct from the crude oil or it may be made as a product of cracking gas oil or fuel oil. Most of the kerosene comes direct from the crude, however and is taken off immediately following the gasoline cut. Kerosenes vary in quality as well as any other oil and they might be termed more or less volatile just as gasolines are either relatively volatile or "heavy."

If a large portion of the heavier ends of what might be included in the gasoline fraction is allowed to go into the kerosene cut, the kerosene is made more volatile and will burn longer without smoking the chimney and a simple, but not too accurate means of noting this characteristic is in specifying a higher gravity than the ordinary grade. Thus a Mid-Continent 44 gravity kerosene is relatively more volatile than a 41 gravity and in general will burn much longer without smoking or incrusting the wick. Such an oil may be classed as a "long time burning oil" providing it meets the other specifications.

Naturally there is an economic limit as to how light the cut of kerosene may be made, for if a part of the gasoline cut is made into kerosene and the heavy ends of the normal kerosene cut is excluded and made into furnace oil, distillate or gas oil, the cost of the small resultant yield of kerosene runs high. For that reason, the price of the high gravity kerosenes is always more than the regular grade and the differential is usually in proportion to the price differential between kerosene and gasoline in general. To show the relation, as much as 35 per cent of a Mid-Continent kerosent is made up of fractions which could be included in U. S. Motor gasoline or as naphtha.

The grade of kerosene made is simp'y a matter of controling the distillation temperature along with an adequate tower control as described in making the various grades of gasoline in the two previous issues of The Oil and Gas Journal. While a distillation test gives the best indication of the quality of the kerosene being made from the standpoint of its volati'ity, the operator can usually judge this from the gravity and color of the stream of kerosene distilling over.

Laboratory Test

In addition, the laboratory makes a flash test, burning test, and others to fully judge its quality. Some judge a kerosene by its flash point, the general rule being that a low flash material wi l burn better than one with a high flash.

After the kerosene is found satisfactory from the standpoint of its volatility, flash, gravity and color it is chemically treated to remove sulphurous bodies thus improving its burning qualities, odor and color. Sulphuric acid is usua'ly used and is then followed by a caustic wash or doctor treatment.

Some plants carry the processing even further and filter the kerosene when treating will not bring the product up to the desired spec.fications. This removes any traces of water which may be held suspended in the oil and renders it a bright, almost colorless product.

In the refining centers where the crude has a relatively high su'phur content which cannot be reduced by treating, in the usual way as described here, special chemical treatment is resorted to and an example of this is the practice of treating California kerosenes with liquid sulphur dioxide known as the Edeleanu process, to make a very good burning oil.

STATES CONSIDER NEW TAXES FOR OIL INDUSTRY

Numerous bills are being presented to the various state legislatures regarding oil inspections and further taxation on refined products. Virginia is now considering a bill presented by Senator Kendig providing for the inspection and regulation of the distribution of gasoline, naphtha, distillates and lubricating oils together with providing a tax to pay for the cost of the inspection. New York is considering a bill providing for a 1-cent tax on gasoline to be collected from the retail stations. A bill was introduced in Mississippi for raising the special tax from 2 cents to 3 cents in those counties having flood control facilities. Virginia has a state tax on gasoline of 4 cents and should this 3-cent special tax be put into effect those counties in the flood district will be paying 7 cents as a tax.

A 2-cent tax on gasoline is being proposed for adoption by the State of Massachusetts, which is one of the three states remaining without gasoline taxes. It is being introduced by T. H. Johnston and prvoides the law become effective January 1, 1929. Kentucky is considering a tax of $15 per truck, automobile or wagon used in the sale of petroleum products which would be in addition to the regular license fees.

A bill has been introduced in the house and senate of South Carolina calling for an investigation of the gasoline retail prices throughout the State. The bill points out that a difference of 3 cents exists in the retail prices between the various cities and asks that the attorney-general determine if this difference is justified.

CALIFORNIA CORPORATION OWNS SIX TANKERS

LOS ANGELES, Calif., Mar. 2.—The California Petroleum Corp. now owns six tankers used in the export and coastwise distribution of its products. In addition, the corporation has two chartered tanks, making a total carrying capacity of approximately 500,000 bb's.

The tanker Mary Ellen O'Neil, recently purchased by the company, is one of the largest boats of its type in operation, having a cargo capacity of 149,000 bbls. It is a ship of 16,000 tons' displacement and will be kept in continuous intercoastal service during the year. The Helen Vinmont is the second largest in the fleet, with tonnage of 14,000 and a capac.ty of 110,000 bbls.

Fuel and crude oil will be exported to Argentina, Japan, China, Chile, Brazil and the Atlantic seaboard, while gasoline and refined oils will be carried to Argentina, England, China and the Atlantic Coast this year.

PRICES OF GASOLINE IN FOREIGN COUNTRIES

Gasoline prices in foreign countries range from 19 to 70 cents per gallon, according to a report compiled by the Bureau of Foreign and Domestic Commerce. The latest report of the Government clearly shows that the overproduction of crude oil and gasoline has brought lower motor fuel prices to many consumers in all parts of the world. This is especially true at seaboard points.

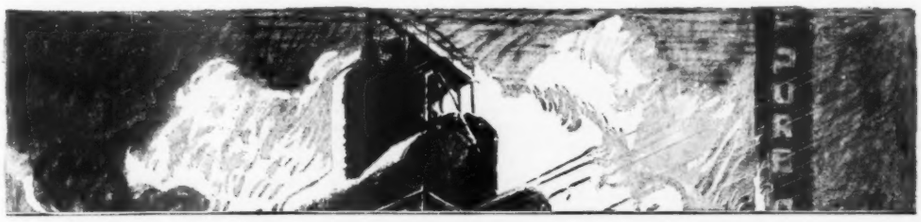
The lowest price of 19 cents is at San Juan, Porto Rico. Gasoline is available for 25 cents a gallon at Vienna, Austria and Edinburgh, of the United Kingdom. At Bucharest in Rumania the price is 22 cents and at London, England, the price is 23 cents. The Hague, Netherlands also has a 23-cent price.

The top price of 70 cents is paid at Bogota, Colombia, and Guatemala City, Guatemala. Other high-priced points include Nairobi, Kenya in British East Africa and Teheran, Persia.

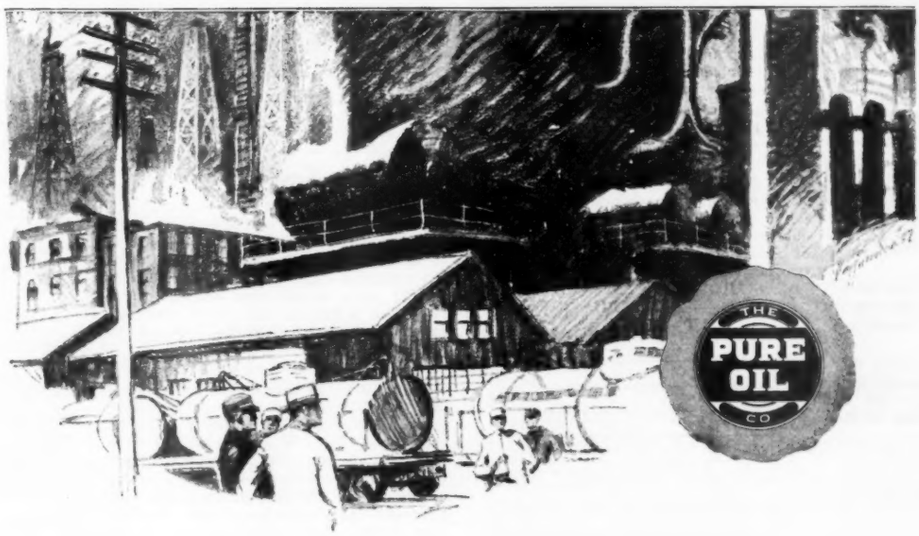
The following table gives the retail prices at representative foreign points:

Angola, Loanda	41
Arabia, Aden	43
Argentina, Buenos Aires	38
Australia, Sydney	42
Aus.ria, Vienna	25
Azores, St. Michael's	44
Belgium, Antwerp	27
Belgium, Brussels	32
Bolivia, La Paz	54
Brazil, Rio de Janeiro	39
British East Africa, Nairobi, Kenya	64
British South Africa, Johannesburg	54
British South Africa, Durban	42
British South Africa, Cape Town	46
Bulgaria, Sofia	35.5
Burma, Rangoon	53
*Canada, Toronto	19
*Canada, Montreal	20
Canada, Winnipeg	23
†Canary Islands, Teneriffe	32
Ceylon, Colombo	45
Chile, Santiago	59
China, Hong Kong	32
China, Shanghai	47
China, Handow	50
China, Peking	38
Chosen, Seoul	41
Colombia, Bogota	70
Costa Rica, San Jose	56
Cuba, Habana	25
Czechoslovakia, Prague	31
Danzig	27
Denmark, Copenhagen	27
Dominican Republic, Santo Domingo	35
Netherland West Indies, Curacao	31
Ecuador, Guayaquil	53
Egyp , Alexandria	31
Estonia	29
Federated Malay States, Singapore	44
Federated Malay States, Penang	42
Finland, Helsingfors	39
France, Paris	32
French West Indies, Martinique	44
Germany, Berlin	26
Greece, Athens	42
Guatemala, Guatemala City	70
Guiana (British), Georgetown	42
Hai i, Port-au-Prince	35
Honduras, Tegucigalpa	62
Hungary, Budapest	29
India, Calcutta	30
Irak, Bagdad	32
Irish Free State, Dublin	25
Italy, Rome	53
Japan, all main centers	32
Java, Batavia	40
Liberia, Monrovia	38
Latvia, Riga	42
Lithuania, Kovno	28
Madagascar, Tananarive	58
Madeira, Funchal	42
Morocco, Tangier	49
Morocco, Casablanca	29
Mexico, Mexico City	26
Mexico, Torreon	39
Mozambique, Lourenco Marques	61
Netherlands, The Hague	23
Newfoundland, St. John's	30
Nicaragua, Bluefields	44
Palestine, Jerusalem	46
Panama, Panama City	30
Persia, Teheran	63
Peru, Lima	21
Philippine Islands, Manila	36
Poland, Warsaw	32
Porto Rico, San Juan	19
Rumania, Bucharest	22
Siam, Bangkok	43
Society Islands, Tahiti	30
Spain, Madrid	47
Spain, Seville	32
Spain, Bilbao	50
Sweden, Stockholm	34
Switzerland, Zurich	33
Syria, Beirut	42
Tunisia, Tunis	30
Turkey, Constantinople	36
United Kingdom, London	23
United Kingdom, Edinburgh	25
Uruguay, Montevideo	32
Venezuela, Caracas	34
Western Samoa, Apia	49
Yugoslavia, Belgrade	47

*Price exclusive of Provincial taxes.
†Price exclusive of tax.



The "*Will and the Way*" to Refine Well



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Muskogee, Okla.
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Pensacola, Fla.

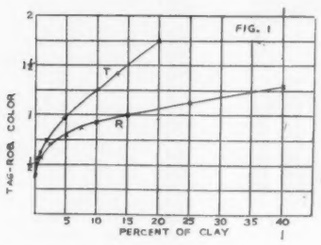
Principles of Contact Filtration

Explain Method of Determining Efficiencies of Different Clays, Should Be Combined With Percolating Operation

By L. L. Davis*
Marland Refining Co.

The rapid increase in the use of pulverulent adsorptive materials in the so-called "contact filtration" process for decolorizing lubricating oils makes it desirable to consider some of the basic principles involved. The commercial methods and types of equipment now in use are fairly well known, having been extensively described in the trade journals. In spite of this, there appears to have been very little published concerning the factors which must be considered in the selection of a process or decolorizing material.

It is commonly understood that contact filtration more or less closely follows the laws of adsorption. These principles have been very thoroughly described by Gurwitch[1]. However, Wilson[2] considers the decolorizing action of full-



er's earth to be due to an oxidation process followed by absorption and Benedict[3] indicates this may have some foundation in the case of fixed oils.

The contacting of neutral mineral oils seems to be adsorptive in character and apparently follows Freundlich's law of adsorption which may be expressed by the formula: $\frac{X}{M} = A C^P$

X = Color material adsorbed by the clay.

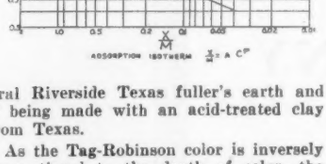
M = Amount of clay used.

C = Concentration of color material after equilibrium.

A and P = Constants for a given oil and clay.

Decolorization Curve

Figure 1 gives the decolorization curve for a neutral, dark colored cylinder stock when contacted with various quantities of clay, curve R being made with nat-



ural Riverside Texas fuller's earth and T being made with an acid-treated clay from Texas.

As the Tag-Robinson color is inversely proportional to the depth of color, the reciprocal of these colors can be assumed to be a function of the concentration of coloring matter. The values of $\frac{X}{M}$ and C can, therefore, be calculated by using the reciprocal Tag-Robinson colors, and when these values are plotted on logarithmic paper a straight line curve results. This is known as Freundlich's adsorption isotherm. Figure 2 gives such isotherms for the two examples given above.

From these curves the constants A and P can be determined, giving the following adsorption formulas for the two clays in question, when used on the dark cylinder stock.

Riverside fuller's earth $\frac{X}{M} = .126\ C^{3.32}$

Acid-treated Texas clay $\frac{X}{M} = .342\ C^{2.30}$

X=Color decrease—Tag-Robinson reciprocals.

C=Final color in Tag-Robinson reciprocals.

M = Clay used in per cent.

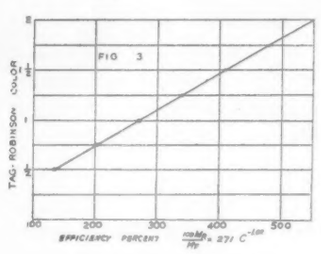
A study of Freundlich's equation shows that if two clays have different exponents P, or in other words if the adsorption isotherms have different slopes, the relative efficiencies of the two clays will be different for each finished color.

This can be derived mathematically from Freundlich's equation to give:

$$\frac{M}{M'} = \frac{A'}{A} C^{(P'-P)}$$

Substituting the values for A and P found above and multiplying by 100 to obtain the efficiency in terms of per cent of Riverside clay, this formula for the two clays in question becomes:

$$\frac{100\ M\ R}{M\ T} = 271\ C^{-1.02}$$



Efficiencies of Clays

This formula is shown graphically in Figure 3 and shows the comparative efficiency of the two clays for the oil used. It will be seen that the relative efficiency of the acid treated clay when used to decolorize neutral cylinder stock increases rapidly with the lighter finished colors.

These considerations show the absurdity of the usual practice of evaluating clays by reporting one in percentage of the other. Such a comparison is fallacious and has frequently led to misunderstandings between marketers of decolorizing clays and prospective customers. It should be remembered that the efficiencies will vary as greatly between different oils and between batches of the same oil processed in different ways as between different colors so that the exact conditions of any comparison must be fully understood.

In the case of contacting treated oils in the acid stage, either for neutralizing, or neutralizing and decolorizing, the relationship after the neutralization is completed and the variation in comparative efficiencies of clays for different colors hold true. No mathematical relationship has yet been developed, but the efficiency curves may be determined with a fair degree of accuracy directly from the decolorization curves by determining the ratio of weights of different clays used to obtain the same finished color.

Figure 4 shows the decolorization curves for five different bleaching materials when contacted with an acid treated cylinder stock from Tonkawa crude, carrying 0.3 per cent acid sludge.

C—Treated California clay in pulp form.

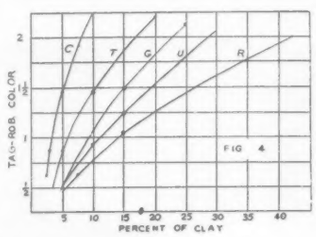
T—Treated Texas clay in pulp form.

G—Treated German clay in dry form.

U—Natural Utah clay.

R—Natural Riverside Texas clay.

It should be noted that neutralization was accomplished with approximately the same quantities of clay and with nearly the same resulting color. With the lighter colors, however, the quantity of the different clays used varies widely. From these curves the relative efficiencies of the various clays for each color has been determined and plotted in Figure 5.



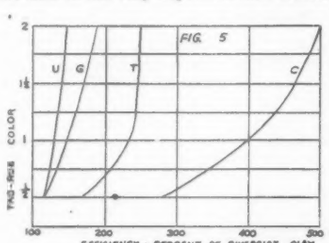
This clearly shows the change in efficiency with the color desired. Thus if it is intended to neutralize the oil only, the cheapest clay, viz. Riverside, would be far more economical, whereas, if a two-color is desired the use of the most expensive clay, that is "C," would be possible.

Stability of Oil

In addition to the actual neutralizing or decolorizing efficiency of various clays, their relative stabilizing effect must be considered. This is particularly true in the case of pale oils. Figure 6 shows various color stability tests over a period of 20 days for 180 pale oil contacted with Riverside fuller's earth and with the German treated clay. The problem was to determine the relative value of the German clay to produce a stable 3 A.S.T.M. color. It will be seen that one-half per cent of the German clay or 1 per cent of Riverside gave an initial color lighter than 3 A.S.T.M., indicating an efficiency for the German clay of 200 per cent. However, both oils darkened rapidly. It was then found that 1 per cent of German or 4 per cent Riverside clay was required to give a color, which would not darken beyond 3 A.S.T.M. in 20 days, making the actual value of the German clay 400 per cent of Riverside.

Revivification

In last year's meeting, Walter Miller stated: "The lack of any practical method of recovering the finely-ground fuller's earth for reuse necessitating the discarding of the earth after one using, is quite an expensive proceeding. This is not offset by the somewhat cheaper price of the average fine clay used for "dry" contact bleaching and is accentuated in the case of the very expensive acid-treated



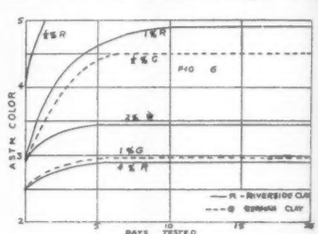
types. Incidentally, the increasing use of the multiple muffle hearth furnace for burning and regenerating the coarse fuller's earth is materially decreasing the cost of percolation filtering."

The problem of revivifying fine earth is being studied intensively by many organizations. Two principal methods of attack are being followed: First, by burning the carbonaceous matter from the clay; and second, by the use of solvents.

The majority of the highly efficient clays, such as the acid-treated pulps, lose their decolorizing ability if burned, so that this method is limited to fuller's earth and such dry acid-treated materials as are largely silica.

Figure 7 shows the effect on the efficiency of fresh Riverside fuller's earth when heated to various temperatures between 100 and 1,200 degrees. Curve A shows the color obtained with 15 per cent of the dried clay on acid cylinder stock, while curve B shows the relative efficiency calculated to the same original weights before burning. It will be seen that there is a rapid break in efficiency above 300 degrees Fahrenheit, and that at 1,200 degrees the clay is only 50 per cent efficient.

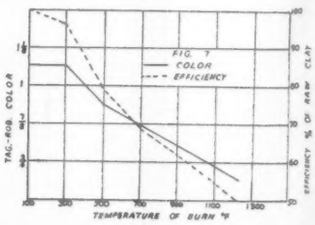
Actual tests on burning once used clay which had been thoroughly washed with gasoline show that a temperature of 1,100 degrees must be used if the carbonaceous material is completely removed. Burns in an electric muffle furnace give efficiencies of about 60 per cent while tests in an experimental multiple hearth



furnace gave efficiencies between 40 and 50 per cent. This indicates that there is little possibility of reclaiming fine fuller's earth by burning.

Reclaiming With Solvents

There have been a number of methods suggested to reclaim decolorizing materials by the use of solvents, and some of these methods show interesting possibilities. Thus Parsons[4] uses carbon tetrachloride, ethyl alcohol and acetic acid; Chappell[5] uses acetone, methyl alcohol



and hydrochloric acid; Rosenbaum[6] uses liquid sulphur dioxide and Prutzman[7] uses benzol alcohol and water.

Using the constant boiling mixture of alcohol and benzol suggested by Prutsman, efficiencies as high as 90 per cent have been obtained from individual samples of used Riverside clay. The solvent methods, therefore, have possibilities of successful development but must still be considered as more or less experimental.

(Continued on Page 159)

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[1]Petroleum Tech. Trans., D. Van Nostrand, P. 397.

[2]Petr. Zeitsch., Dec. 10, 1926, P. 1327.

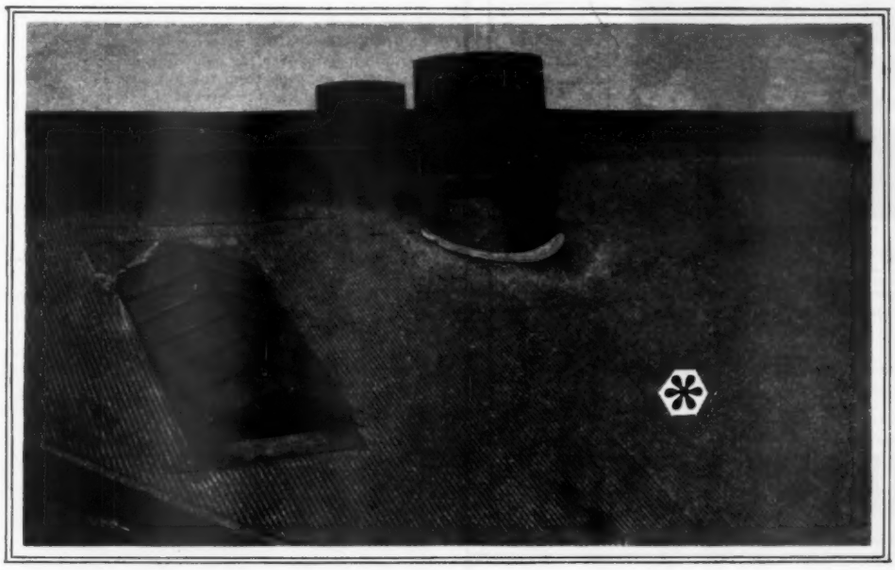
[3]Journal Oil and Fat. Ind. 2 62. 1925.

[4]U. S. Patent 1,112,650, Oct. 6, 1914.

[5]U. S. Patent 1,488,805, Apr. 1, 1924.

[6]U. S. Patent 1,649,193, Nov. 15, 1927.

[7]U. S. Patent 1,633,571, June 24, 1927.



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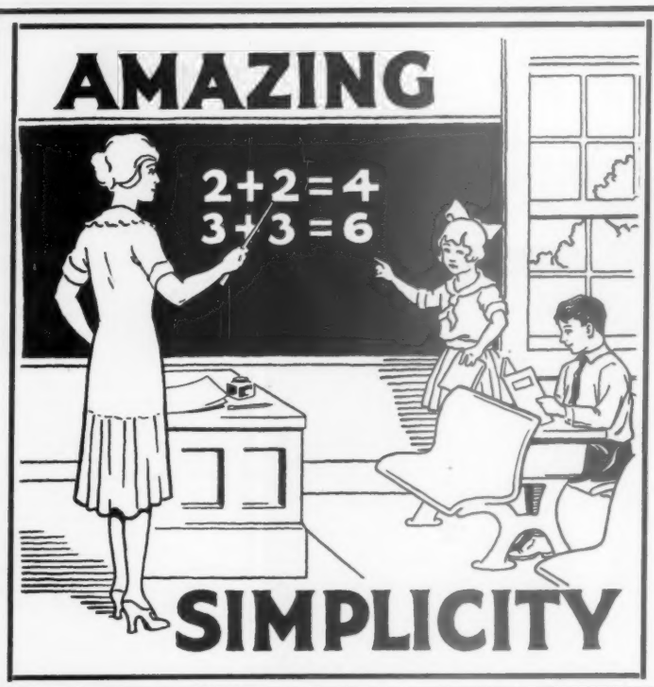

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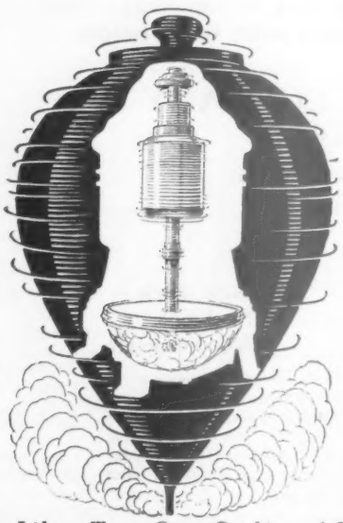

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MEASURING DEPTH OF THE DEEP WELLS

(Continued from Page 61)

after it leaves the sand line reel. The point at which the string is attached is determined by measuring from the floor of the derrick with a 5-foot stick. See Figure 2. The string attached at b, for example, passes over the sand line pul'ey at a and is removed from the line just as it enters the well at the level of the floor. The distance from the string on the sand line at the end of the 5-foot stick to the level of the floor as measured with a tape over the sand line pu.ley is the unit of measurement and is generally something like 150 or 160 feet, depending, of course, on the height of the derrick.

This method of measurement is subject to a rather serious error due to the difficulty of accurately determining the unit of measurement by measuring over the derrick. Two errors are involved—one mechanical, the other geometrical.

The mechanical error is the result of a slight diminution in the height of the derrick which is produced by gradual'y increasing the load at the top of the derrick while the line is being lowered into the well. The actual error resulting from this cause is approximately twice the amount of the lowering of the top of the derrick. This error can be eliminated in part by determining the standard unit of measurement when the tools are at a depth equal to the half-depth of the wel'l, or better still, by averaging the standard units obtained by measuring over the derrick when the tools are at the top, bottom and mid-point of the well. As a check on the measurements, the value found at the half-depth should not differ materially from the average of the three values found at the top, bottom and mid-point. If the standard unit of measurement is determined when the tools are at the top of the well, the observed total depth is too great.

The geometrical error is illustrated in Figure 2. The lines ab, as represent the respective positions of the sand line when the bailer is at the top and the bottom of the well. The line bd represents the points at which the strings are attached to the line, whereas the points at which they should be attached are located on a spherical surface described with radius ab about point a as a center. Since ad in Figure 2 is less than ac which is equal to ab, the assumed standard unit of measurement, this method of procedure amounts to arbitrarily assigning to ad a length equal to ac. The total depth thus obtained is obviously too great. The converse is true, the observed depth is too small, when the sand line has the positions ab', ac'. In this case, we substitute for ac' the value ad' = ab'.

Assuming some fixed position of the cable as the standard of reference, ab for example, the geometrical error can be eliminated by determining the co-ordinates of the points of intersection of the cable with a fixed plane passing through bd. The corrections are then obtained by means of a trigometric calculation.

Depth Recorders

Numerous attempts have been made, apparently without success, to devise a machine that will accurately record the depth of a deep well. Patents have been granted on several of these machines. They are of the type that may be characterized as rigid, meaning thereby that the fundamental mechanism consists of a measuring wheel which is held in a rigid position, and against which the sand line is held in continuous contact by means of certain combinations of levers, springs and wheels.

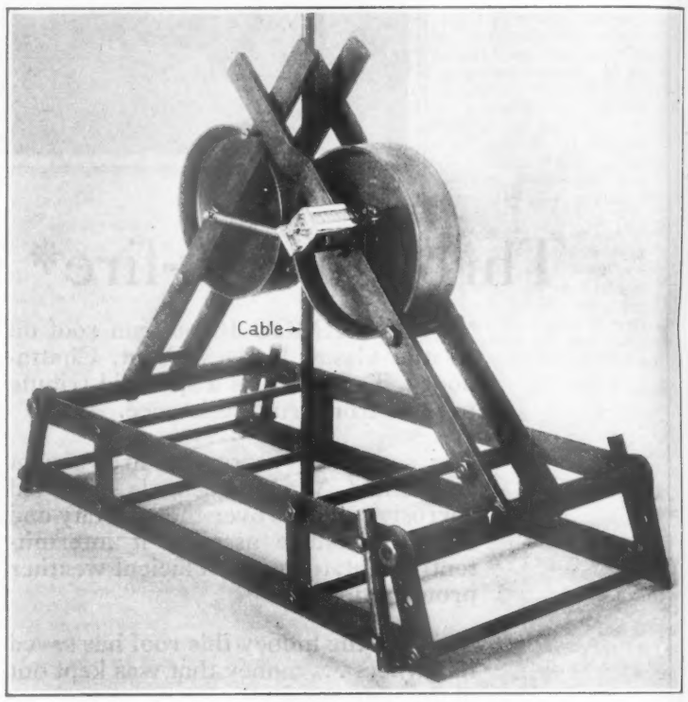

Figure 4—Side and end view of depth recorder without guiding pulleys.

In Figures 3 and 4 are shown two views of a flexible type of machine that I use in measuring the depths to which thermometers are lowered into deep wells while making temperature tests. Each of ference and is geared to a revolution counter which records depth in feet One counter only is shown in the figures. Beneath the wheels as shown in Figure 3 are two guiding pulleys that serve to keep the cables centered with reference to the measuring wheels. The support at the base of the triangular frame can be spread, thereby increasing the distance between the pulleys so that adjustment can be made to cab'es of different diameters. The steel tubes shown on the side of the steel frame are used in mounting the machine on legs. Ordinarily, it is quite sufficient to mount each end of the steel frame on a 2-inch by 4-inch piece of wood, which in turn is tacked lightly to the floor of the derrick.

In operation, the pair of spiral springs and the pair of bolts at the top of the triangular frame supporting the guiding pulleys are removed and the respective frames carrying the guiding pulleys and measuring wheels are rotated outwards so as to permit of the passage of the bailer through the center of the machine. The machine is then centered with reference

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to the cable in its normal running position. Leveling is an essential adjustment and is readily accomplished by placing a level horizontally in contact with the upper tangent points of the measuring wheels and also transversely across the steel frame.

The chief sources of error are longitudinal and transverse vibrations of the cable. The former is produced chiefly by the slipping of the coils on the sand line reel while the latter are the results of periodic impulses transmitted to the line through the medium of the derrick, the engine or other parts of the drilling equipment. With speeds as low as 200 feet per minute and a reasonable adjustment of the oil well machinery, irregularities of this kind are largely eliminated.

To accurately test a measuring device of this kind, it would be necessary to measure with a metal tape under a given tension, a given length of cable as it passes in a vertical position into the well. The bailer should not be lowered to a point such that it drags on the casing. Under these conditions a measuring machine should accurately record the length of cable measured by means of the tape, regardless of the direction in which the cable is moving.

I have not made this test, but in a recent test near Johnstown, Pa., the depth of a deep well was measured with the machine shown in Figures 3 and 4 while lowering the line into the well. One of the counters recorded 6,719, the other 6,721 feet, and in a test made a few years ago near Ligonier, Pa., in deep well No. 1,842 of the Peoples Natural Gas Co., Pittsburgh, Pa., a machine with a single measuring wheel recorded a depth of 7,697 feet, which compared favorably with the value 7,705 obtained by the company using the method of "stringing over the derrick." Numerous other partial tests made while lowering thermometers to different depths in deep wells showed a like degree of accuracy.

In Figure 5 is shown a proposed arrangement of measuring wheels and guiding pulleys which has been designed to meet three fundamental and necessary requirements in the construction of a measuring machine; namely, stability, flexibility and an equalized distribution of load on the cable. Two methods only of arranging the two pairs of steel bars on which the measuring wheels are mounted are shown in the figure. The arrangement of supporting bars represented by the heavy lines is intended for use while removing the line from the well.

The construction of a machine that accurately records the length of cable passing the point of tangency of the measuring wheel and cable (see Figure 1) is not a simple tax, nevertheless, the possibility of constructing such a machine is not altogether hopeless. But, assuming that a perfect measuring machine can be constructed, the fact remains that the true depth of a deep well cannot be determined—the point b determined by the "pick up" can not be accurately located, and the measurement of the depth, b h, is dependent on the drag of the line and bailer on the casing as the cable is removed from the well. The adhesion of the cable to the casing is largely a matter of chance, consequently, a precise duplication of measurements with a perfect recording machine at the top of the well is not to be expected. Perfect duplication will be obtained just in proportion as the cable acts as a rigid body, or is inelastic with reference to the applied load (W) and the frictional forces developed between the cable and the casing.

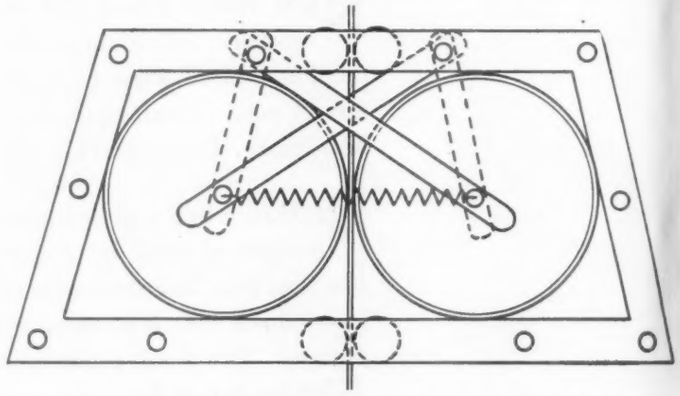

Figure 5—Proposed arrangement of measuring wheels and guiding pulleys.

GOVERNMENT STRIKES BODIES OF POTASH

The thickest bodies of potash salts yet revealed by government tests have been found in the third government well drilled in Eddy County, New Mexico. The geological survey recently completed analyses of samples selected from the core of this well which show that within 1,500 feet of the surface nine beds or groups of beds of possible commercial interest were encountered. One of these, at a depth of about 1,466 feet, is 8 feet 10 inches thick and contains 11.08 per cent of potash (K_2O) in the sample as received, equivalent to 18.25 per cent K_2O in the soluble salts. Other noteworthy beds range in thickness down to 2 feet 3 inches and in potash content from 8.50 to 13.68 per cent in the samples as received. Only one potash mineral, polyhalite ($K_2SO_4.MgSO_4.2CaSO_4.2H_2O$), was recognized in the samples recovered in drilling, but owing to difficulties in this connection some of the more soluble salts originally present may have been lost. The polyhalite occurred in a number of colors and textures, including a coarsely crystalline variety which is apparently new in this country.

Well No. 3 is in the SW, Section 34, Township 22s, Range 30e, about 28 miles from Carlsbad. It is one of the group being drilled by the Bureau of Mines under the potash act, which provides for joint exploration by the Geological Survey, and the Bureau of Mines. The Geological Survey selects the drilling sites and receives and analyses the cores obtained by the Bureau of Mines. The site of well No. 3 is about 11 miles south of the McNutt location, whence the first potash core in New Mexico was taken a few years ago.

OIL IN BULGARIA

The question whether oil in large quantities is to be found in Bulgaria has been greatly discussed. Recently some peasants in the Kazanlik district (in the Valley of Roses) discovered oil in a well. The mining department, after preliminary investigations, found it was true petroleum which had appeared after a slight earthquake, and, in quality, resembled Baku oil. The department says that it is too soon to pronounce upon the practical value of the discovery before careful geological work has been done to find out how much oil could be extracted and eventually the conditions of exploitation.

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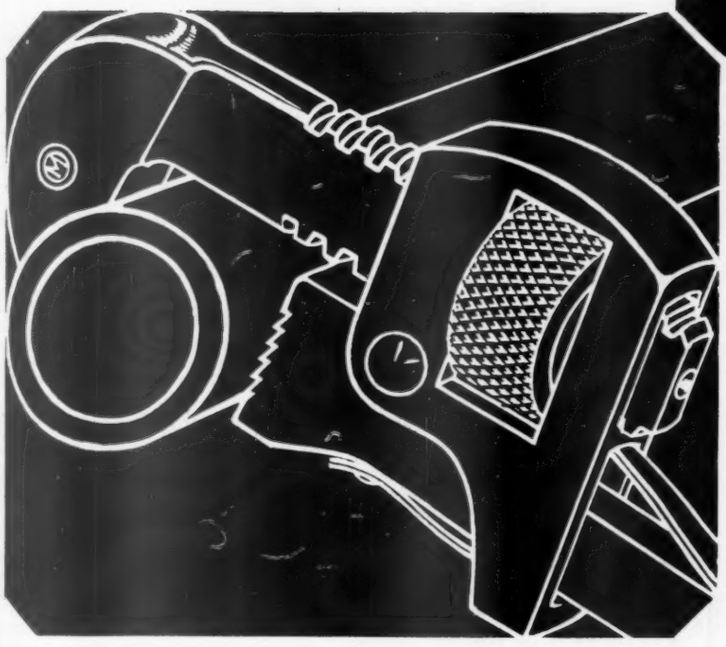

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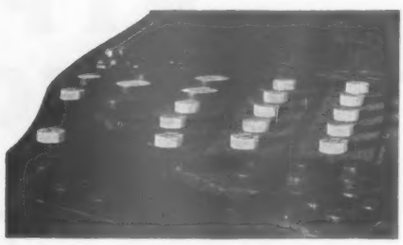

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BETTER DRILLING AND REFINING METHODS ADOPTED IN RUSSIA

By Basil B. Zavoico*
Enid, Okla.

The 1926 to 1927 operating year did not witness any radical changes in the petroleum situation of the Russian Soviet Union. The developments of the previous year were continued but the major undertakings were far from being completed. The pipe lines from Baku to Batum and from Grozny to Tuapse, and the large refineries on the Black Sea are delayed in completion by insufficient authorizations.

The home market in Russia is steadily growing, with the per capita kerosene consumption already exceeding the prewar figure. The fuel oil consumption is obviously gaining. The foreign trade is making rapid success, but is yet suffering from low-world quotations. There is no apparent sacrifice of the home consumers in favor of the export trade.

The production of all Russian fields increased by 13,750,000 bbls., and next year's program anticipates a further increase of 9,720,000 bbls. The increased and improved refining facilities next year will make the real gain in production even larger than the figures indicate.

Improved Drilling Methods

It is to be noted that the pumping of the wells continues to gain in favor, and that during the past year 36 per cent of the total production was lifted by pumps, compared with 0.3 per cent in the first half of the 1923-1924 operating year. The pumping installations during the past year reached 2,275 units, a net gain of 850 units for the year; while the bailing method was used only in 593 wells, as compared with 1,001 wells in October, 1926. The bailing is to be continued in only 189 old wells; most of them yielding too much sand to be put on pumps and not in condition to be properly cleaned out. In the next few years the bailing is to be abandoned entirely, since the modern drilling and completion of the wells will eliminate the present necessity of lifting excessive quantities of sand. The Azneft management estimates that the introduction of the pumping equipment saved in excess of $50,000,000 during the past two and a half years, which estimate is reasonable enough considering the saving in labor, the increase in gasoline extraction due to the closed method of production, the utilization of gas from pumping wells and finally the ability to exploit small wells, which do not pay as bailers.

It should be especially noted that while in 1913 the old rod-percussion method was actually responsible for 100 per cent of all drilling, in the 1926-1927 operating year only 7.1 per cent of the total footage was made by old rigs, and that it is to be entirely abandoned during the coming year. The Russian turbo-rotary drilling method was further developed, and on rotaries automatic feeding apparatus of American and Russian designs was being widely introduced. (The turbo-rotary drilling method consists of a pipe lowered into the well, with a high pressure pump connection on top to force the mud fluid into the hole. The pipe is stationary, while on its lower end there is a small turbine operated by the down flowing mud which rotates this cutting bit.)

The 1927-1928 program anticipates the completion of 463 producers, 47 semi-wildcats, 31 wildcats, 116 reconditioned wells and 73 plugging operations, while the total number of operations during the year is to reach 1,128.

The modernization of drilling equipment was responsible for the very marked increase in the rate of drilling and also in the decrease of the cost per foot. While in 1920 an active rig drilled only 30 feet per month, the 1925-1926 averages show 230 feet per active rig, and at the present time individual rigs show as much as 2,100 feet per month. Accordingly, a 2,300-foot well, which in former years required 12 months of drilling, is now being completed in 60 to 70 days. The cost of drilling dropped as radically from $62.80 per foot in 1923 to $27.30 per foot in the first half of the 1926-1927 operating year.

Few New Discoveries

The past year was not too successful for the Azneft in the way of new discoveries. Only deeper horizons of the old fields proved to be of major importance, while no new pools were opened. Puta, Shubani and Saliani were all discovered during the 1924-1925 operating year, and were first tested before nationalization. Geological science continues to gain ground in Russia, but even to this date all wildcat locations of Azneft are apparently limited to the areas showing good surface oil seepages. The structural conditions of the Apsheron Peninsula are such that major oil accumulations may, and should, be expected in gentler undisturbed folds from which oil did not have chance to migrate, either laterally or vertically.

At this time it is quite useles to try and figure the total ultimate resources of the Apsheron Peninsula. Oil in sight is conservatively estimated at 500,000,000 bbls., but more likely it equals two or three billion barrels.

Refining Operations

The refining branch of the Azneft is still in the transient stage. The construction of pipe lines to Batum held up the building of large units in Baku, while the Batum refineries will not be ready for operations until the end of 1928 at the very best. Evidently the final plan is to refine all exportable products in Batum, using pipe lines to transport the crude from Baku, thus avoiding the expensive railroad traffic. The Baku refineries will take care of the home market, probably with the exception of the gasoline, which will be exported from the Baku refineries to Batum by rail, because of the insufficient home demand of that product.

Meanwhile the increased runs are achieved entirely by means of topping the crude, obtaining kerosene and gasoline, and disposing of the residue as the fuel. Such procedure offers a temporary relief, but will eventually prove most expensive, because of the waste of useful fractions lost in the fuel oil. However, the central government in Moscow is proceeding along the lines of least resistance, and because topping operations are furnishing immediate revenue at the minimum of capital expenditure, the topping plants are most favored at the moment. Even in Batum the new refineries will be chiefly of the topping type, only the latter gradually changing to ones of the complete cycle.

The quantitative increase of Baku crude runs is due to the substitution of the old boiler stills by the modern ones of the tubular type. These new stills are responsible also for the larger recovery of gasoline and kerosene, because of the greater heating surface and also because they are leak-proof, while many of the older units were losing a large percentage of lighter fractions by leakage alone.

The new construction in Baku, in addition to tubular stills distributed over several older refineries, includes a new refinery, just completed, specializing in lubricating stocks and running topped crude. Its capacity is estimated at 2,150,000 bbls. per year, thus adding considerably to the exportable products. The construction of cracking stills in Baku is so far on an experimental scale only and is of no immediate commercial importance. The capacity of the refineries which are being built and planned for Batum is 11,500,000 bbls. per year, or 32,300 bbls. per day. This estimate should be reached by October, 1929, while one refinery should be ready by October, 1928. In addition to building refineries in Batum, the Azneft completed there during the past year one kerosene treating plant (1,160,000 bbls. per year capacity) to meet the standards of European

*Mining engineer and geologist, Sinclair Oil & Gas Co., before A.I.M.E. New York meeting.

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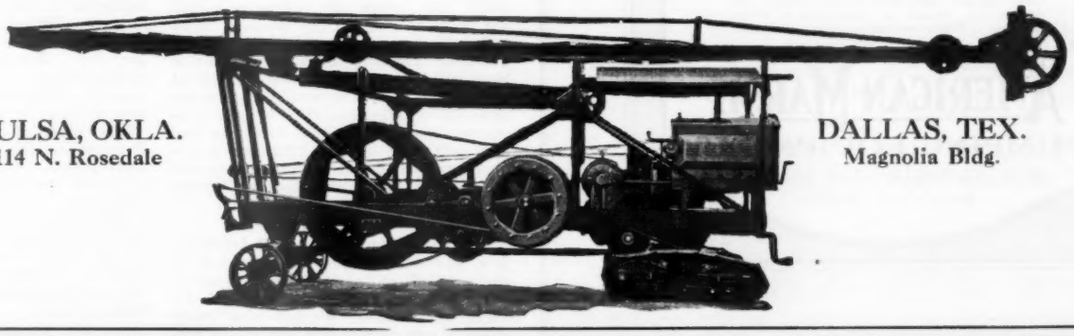

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markets, and the Standard Oil Co. of New York also built a similar plant. (Standard Oil Co. of New York plant was completed in August, 1927, at a cost of $250,000.)

Refining Operations in Baku District, Total Crude Runs

Year—	Bbls.
1922-23	15,400,000
1923-24	16,000,000
1924-25	23,700,000
1925-26	25,800,000
1926-27	29,000,000
1927-28 estim.	35,000,000
1928-29 estim.	45,000,000

Products Obtained (Percentage of Total)

	1925-26	1926-27	1927-28 Estim.
Gasoline	4.9	5.2	6.3
	Bbls.	Bbls.	Bbls.
	1,155,000	2,070,000	2,800,000
Kerosene	27.6	28.1	29.3
	Bbls.	Bbls.	Bbls.
	8,810,000	11,300,000	
Lubricating oils (all kinds)	12.0	16.7	18.3
Fuel oil (all kinds)	52.3	47.2	43.5
Refining losses	3.2	2.8	2.6

In general it may be concluded that the refining operations of Azneft are showing definite progress both in quality and in quantity, even though the central planning committees do not wish to stand large expenditures for capital building program. During the next few years the Batum refineries will undoubtedly be able to take care of all the export trade, especially so from the qualitative side, since the refineries which are being built there are designed so as to be able to compete with the American products. The home market on the other hand will have to be satisfied for several years by relatively poorer grades of the older Baku refineries. The interior consumers, however, are not likely to feel this deficiency because they are accustomed to the use of such products and quantity is the more important factor at home.

Transportation

The main factor of the oil transport is a pipe line on land and a tanker on water. And while the interior markets of Russia can be served through the Volga, the exports, which now reach about 25 per cent of the total Baku production, are still moved in large proportion by rail. Accordingly the solution of the transport is in the building of crude oil pipe lines from Baku to Batum. The Azneft management is rushing through its first 10-inch line, which should be ready within two years, and is also planning a second 10-inch line to be built on completion of the first line. The present 8-inch line (about 5,000,000 bbls. capacity), pumping kerosene, will be transporting crude as soon as the first refinery in Batum is completed.

The cost of the first 10-inch line is calculated at $16,000,000. The cost of pumping from Baku to Batum is figured at 24.2 cents per barrel against the present railroad rate of 67 cents. Accordingly with the new pipe line capacity of 11,000,000 bbls. per year the saving for one year will amount to about $5,000,000, and the pipe line will pay for itself in the course of about four years. The period of construction, in excess of three years, is very long and is due to the wish of the government to order as much as possible of the equipment and machinery at home plants. The factories of the Soviet Union, however, because of the inexperience and red tape, are turning the orders unusually slow, have to remake and retest much of the orders, and therefore even the present time estimate for the completion of the line may be considerably extended.

Grozny District

The Grozny district of the northern Caucasus show gains in production, refining and export, very considerably in excess of the originally proposed program. The total production reached 22,200,000 bbls. (62,300 bbls. per day), an increase of 25 per cent over the previous operating year. The 1927-28 plan anticipates the production of 23,700,000 bbls., which may be somewhat exceeded if the railroads can undertake to move more.

In the New Grozny Field, the sixteenth producing sand was found to be most prolific, and flowing wells in excess of 11,000 bbls. initially are not uncommon. This horizon is to be developed actively, as soon as the transportation facilities are adequate. The flowing wells continue to contribute approximately two-thirds of the total from but few wells, therefore allowing this area to be classed as flush. It should be noted, however, that the flowing wells of Grozny show remarkably good decline curves, partly due to careful spacing, and partly to very favorable structural and sand conditions.

Refineries of Grozny increased their runs, the 1926-27 operating year total crude runs reaching 20,700,000 bbls.

In addition to the gasoline obtained from the straight crude runs, about 150,000 bbls. was produced by three natural gasoline plants. The gasoline content per 1,000 feet of gas averages 7 gallons for the whole district, the maximum being about 14 gallons.

The 10-inch pipe line from Grozny to Touapse on the Black Sea is under construction, about 150 miles of piping being already in place and welded, the total length of the line being about 400 miles. Total expenditures on the line and refineries in Touapse reached $4,200,000 to date. The capacity of the refineries in Touapse is planned at 30,000 bbls. per day. The time originally set for completion of the line and plants, October 1, 1928, will be delayed probably over a year.

The short pipe line from Grozny to Petrovsk on the Caspian Sea moved 3,700,000 bbls. in 1926-27, compared with 2,750,000 bbls. during the 1925-26 operating year.

The geological department of the Groznefi recently figured the known reserves of the Grozny district, estiamting oil in sight at 520,000,000 bbls., of which amount 400,000,000 bbls. lay in the New Grozny Field.

Ural-Emba Fields

The production of the Emba district reached 1,825,000 bbls. during the 1926-27 operating year (5,120 bbls. per day). This compares with 1,570,000 bbls. in the previous year and with 2,000,000 bbls. planned for the 1927-28 operating year. The Dossor Field produced 85.7 per cent of the total output (from 100 wells); the Makat Field furnishing the remaining portion. The next operating year anticipates doubling the Makat Field output, due to recent discoveries. Some new wells in the Makat make about 250 bbls. per day, being considerably in excess of the normal settled production. In the Dossor Field a recent completion (No. 202) had a natural flowing production of 1,000 bbls. per day from 720 feet.

The crude runs to refineries during the 1926-27 year were 1,200,000 bbls.; 340,000 bbls. of kerosene and 240,000 bbls. of the lubricating oils were refined, these being the two most valuable products of the Emba fields. Also 540,000 bbls. of fuel oil were obtained. The fuel oil situation is improved to a very marked degree, a number of industries being returned to the use of the fuel oil from coal. Textile industry will be transferred to the fuel oil almost in all its plants. It is considered imperative to push the home fuel oil consumption to about 40,000,000 bbls. in order to stimulate industrial activity, and such an amount will be made available next year, if it can be consumed.

The kerosene consumption continues to show increases in per capita use, though the rate of the increase is apparently becoming stationary at about 10 per cent per year.

The ever-increasing importance of the gasoline export (40 per cent of the total in value) and also the expected increases in lubricating oils are necessarily shifting the burden of the export market from the Far East countries to

REFINING OPERATIONS IN GROZNY

	1924-25 Bbls.	1925-26 Bbls.	1926-27 Bbls.	*1927-28 Bbls.
Total crude runs	13,400,000	16,350,000	20,700,000	22,000,000

PRODUCTION OBTAINED IN PERCENTAGE OF CRUDE RUNS

Gasoline	14.23	15.05	15.35	16.10
Kerosene	9.81	10.76	14.40	14.50
Fuel oil, etc.	72.45	70.47	66.75	65.60
Losses	3.51	3.72	3.50	3.50

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Europe, where the rapid development of the motor traffic causes a steadily growing demand. It is also of interest to note that the Russian exports are being localized to the Mediterranean Sea (45.7 per cent in 1926-27) at the expense of the Atlantic and North Sea ports; Italy, France and Spain being chiefly responsible for such orientation.

Prospects for the Industry

The Russian oil industry at the close of the present operating year will reach a stage when it will be in position to increase the crude output considerably. Large increases may be anticipated in the New Grozny Field and also from Baku, though no new fields of major importance were opened there as yet. Saliani and Puta trend may eventually rank as first-class fields, but their development is yet several years ahead. The production of the three major fields of the Apsheron Peninsula is remarkable, being in excess of 150,000 bbls. per day for over 30 years. Even now it may be conservatively assumed that production from the three fields will reach 200,000 bbls. per day and stay at that rate for another 10 years at least. No extensive wildcatting has been done yet, either near Baku or Grozny. The surface indications as well as the structural features of the Caucasian uplift, undoubtedly favor the presence of large oil accumulations around the core of the mountains. The Volga River region, Crimea, Turkestan and Saghalien are among other prolific areas either untouched or but scratched. It should also be remembered that the deepest hole in Russia probably did not go much farther than 3,000 feet.

The outlook of the industry accordingly may be stated as follows: Very rich petroleum reserves, oil in sight sufficient for at least five years of rapidly growing production; refining and transportation facilities increasing by about 25,000,000 bbls. in the next two years, and the markets sufficient to readily take care of any increase that the Russian Oil Trust may reasonably effect in the next few years.

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Gray County

Empire Gas & Fuel Co.'s No. 1 A. J. Dauer, 990 feet south and west of the NE cor. of Section 236, Block B-2, H.& G.N. Survey. Sullivan and others' No. 1 S. A. Cobb, 330 feet south and west of the NE cor. of the NW of Section 64, Block 25, H.&G.N. Survey.

Wheeler County

Vaughan and others' No. 1 M. Ackley-B, C of NE of NW of Section 4, Block 27, H.&G.N. Survey.

Cochran County

Marland Oil Co.'s No. 1 C. A. Slaughter, 330 feet north and east of the SW cor. of League 130, Carson County School Land.

NORTH CENTRAL AND WEST TEXAS

Archer County

Fain-McGaha Oil Corp.'s No. 2 L. F. Wilson-A, 150 feet south and east of the NW cor. of Lot 27, Wilsons Geraldine Subdivision. Same company's No. 3 L. F. Wilson-A, 150 feet south and west of the NE cor. of Lot 27, Wilsons Geraldine Subdivision. Fain-McGaha Oil Corp. and United Producers Co.'s No. 1 L. F. Wilson-B, 150 feet north and east of the SW cor. of Lot 20, Wilsons Geraldine Subdivision. F. H. Gohlke and others' No. 1 W. H. Taylor, 150 feet south and east of the NW cor. of Lot 233, Geraldine Subdivision. D. O. Johnson and others' No. 2 L. F. Wilson-A, 450 feet south and 150 feet west of the NE cor. of Lot No. 26, Geraldine Subdivision. D. O. Johnson and others' No. 1 L. F. Wilson-B, 150 feet north and west of the SE cor. of Lot No. 19, Wilsons Geraldine Subdivision. The Texas Company's No. 1 W. E. Wolf, 2,208 feet south and 923.5 feet west of the NE cor. of the M. H. Finch Survey, A-888. Mid-Kansas Oil & Gas Co.'s No. 1 G. R. Campbell, 150 feet north and west of the SE cor. of Lot No. 4, Crawford Subdivision. R. Robertson and D. McMahon's No. 1 G. P. Meade Estate, 150 feet north and 450 feet east of the SW cor. of Lot No. 1, G. P. Meade Subdivision, W. S. Blount Survey, A-13. United Producers Co.'s No. 1 J. L. Lemmond, 150 feet south and east of the NW cor. of the north 80 acres of the J. L. Lemmond 160-acre tract out of Section 1, B.B.B.&C. Survey, A-53.

Brown County

Clark-Buffalo Oil Co.'s No. 2 Brown County fee land, 2,000 feet south and 1,900 feet east of NW cor. of the James Kenny Survey No. 624, being 315 feet southeast of their No. 1. J. E. Davis and others' No. 1 J. M. Perry, 4,400 feet south and 1,900 feet east of NW cor. of James Kenny Survey No. 624, being 150 feet south and east of NW cor. of their 30-acre lease. Henshaw Oil Corp.'s No. 1 P. U. Bush, 2,300 feet south and 1,500 feet east of NW cor. of James Kenny Survey, No. 624, being 150 feet south and west of NE cor. of its 77-acre lease. Humble Oil & Refining Co.'s No. 11 Jim Gilbreath, 150 feet north and 238 feet west of SE cor. of its 30-acre lease out of R. F. DeBord Survey, A-2,136.

Lamb & Shaw's No. 1 J. M. Perry, 1,500 feet south and 2,150 feet east of NW cor. of James Kenny Survey No. 624, being 150 feet south and east of the NW cor. of their 46.5-acre lease. Same company's No. 2 J. M. Perry, 1,750 feet south and 2,400 feet east of NW cor. of James Kenny Survey, No. 624, being 300 feet southeast of their No. 1. G. P. Mitcham's No. 1 J. W. Newton, Lot 1, 3.500 feet north and 1,400 feet east of SW cor. of Roland Honeycutt Survey No. 623, being 150 feet north and west of SE cor. of Lot No. 1. Pandem Oil Corp.'s No. 1 A. L. Curry-A, 2,016 feet south and 150 feet east of NW cor. of the east 81 acres of A. L. Curry 160-acre tract out of E. L. Betts Survey, A-70. Same corporation's No. 6 A. L. Curry-B, 150 feet south and 466 feet east of NW cor. of south 20 acres of north 40 acres of west 80 acres of E. L. Betts Survey, A-70.

W. Peckham and others' No. 1 P. U. Bush, 1,650 feet south and 1,650 feet east of NW cor. of James Kenny Survey No. 624, being 150 feet south and west of NE cor. of its 20-acre lease. W. Peckham and others' No. 2 P. U. Bush, 2,000 feet south and 1,500 feet east of NW cor. of James Kenny Survey No. 624, being 450 feet south and 150 feet west of NE cor. of their 20-acre lease. Phillips Petroleum Co.'s No. 9 Roy Hickman, 150 feet south and 466 feet west of NE cor. of its lease out of Thomas Benson Survey No. 783. F. S. Preston and others' No. 1 P. U. Bush, 1,400 feet south and 1,700 feet east of NW cor. of James Kenny Survey No. 624, being 150 feet north and west of SE cor. of their 20-acre lease.

M. L. Richards' No. 3 A. L. Curry, 150 feet north and 466 feet east of SW cor. of the north 20 acres of west 80 acres of E. L. Betts Survey, A-70. Charles L. Roff's No. 1 M. W. Bull, 4,050 feet south and 3,900 feet west of NE cor. of Roland Honeycutt Survey No. 623, being 200 feet north of south line and 150 feet west of east line of his 10-acre lease. The Texas Company's No. 24 Roy Hickman, 150 feet south and 73 feet east of NW cor. of its 160-acre lease out of Thomas Benson Survey No. 783. G. R. Woods and others' No. 1 G. S. Baugh, 150 feet south and east of NE cor. of N. A. Perry 160-acre tract out of J. Van Winkle Survey No. 64, and located in the John C. Neal Survey No. 638.

Callahan County

Max Westheimer and others' No. 1 C. B. Snyder, C of NE of SE of Section 143, B.B.B.&C. Survey. Mortimer & Benton's

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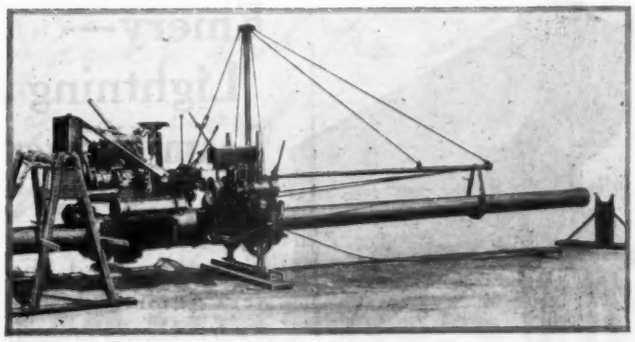

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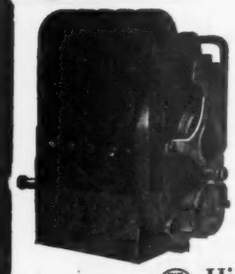

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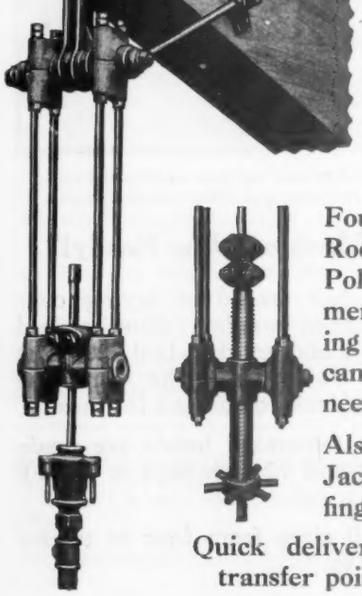

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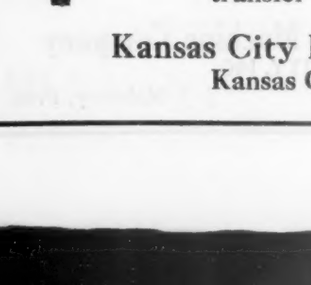

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No. 1 A. Hickman, 150 feet south and 1,170 feet west of NE cor. of Section 1, I.&G.N. Survey, being 150 feet south and east of NW cor. of their 40-acre lease. H. M. Pardee's No. 1 Joe Alexander, 150 feet south and west of NE cor. of Section 116, B.B.B.&C. Survey.

Coleman County

R. E. Pitts and others' No. 1 C. E. Burns, 150 feet south and west of NE cor. of Lot No. 17, A. White Survey No 161. Roth & Farout's No. 3 Sealy & Smith, 530 feet south and 2,178 feet east of NW cor. of SW of Section 19, Block 1, G.H &H. Survey. Roth & Faurot's No. 1 E. M. Trimble, 200 feet north and 160 feet west of SE cor. of E. M. Trimble 107.5-acre tract out of Lot No. 4, Coleman County School Land No 57. Roxana Petroleum Corp.'s No. 1 Mrs. J. P. Henderson, 1,050 feet south and 150 feet west of NE cor. of Mary McCarty Survey No. 167. Moutray Oil Co.'s No. 1 J. Z. Miller, Jr., 330 feet south and 1,650 feet east of NW cor. of H.E.&W. T Survey No. 121, A-859. Same company's No. 1 Willie D. Padgitt, 990 feet south and 330 feet east of NW cor. of Section 141, Brazoria County School Land No. 226.

Cooke County

Maer & Staniforth's No. 1 H. D. Fields, north 55 degrees west 3,033 feet from southeast line and south 35 degrees west 2,444 feet from northeast line of John C. Morgan Survey, A-750.

Crocket County

Henshaw and McMan Oil & Gas Co.'s No. 1 W. Owens, C of NW of Section 17, Block GG, G.C.&S.F.R.R. Survey. Young & Donnelly's No. 2 J. M. Shannon, 2,590 feet north and west of SE cor. of Section 18, Block 10, G.C.&S.F. Survey.

Ector County

Pennsylvania Drilling Co.'s No. 1 W. E. Connell, C of NE of Section 7, Block B-16, Public School Land

Howard County

Bristow & Merrick's No. 5 A. J. Hooks, 1,120 feet south and 590 feet east of NW cor. of Section 140, Block 29, W.&N.W. R.R. Survey. F. H. E. Oil Co.'s No. 1 Dora Roberts-E, 2,440 feet south and west of NE cor. of Section 136, Block 29, W.&N W. R.R. Survey. Tate-Weekley & Tubbs' No. 4 Dora Roberts, 150 feet south and west of NE cor. of south 20 acres of SE of NE of Section 156, Block 29, W.&N.W.R.R. Survey.

Jack County

Amerada Petroleum Corp.'s No. 1 G. L. Fry, 1,250 feet south and 2,250 feet west of NE cor. of Lot No. 1, M. Putman Survey, A-461. Same corporation's No 2 G. L. Fry, 1,350 feet northwest of southeast line and 2,200 feet northeast of southwest line of M. Anderson Survey, A-5. Same corporation's No. 1 J. E. Shaw, 2,640 feet southwest of northeast line and 1,250 feet southeast of northwest line of M. Anderson Survey, A-5. Same corporation's No. 2 J. E. Shaw, 1,350 feet northwest of southeast line and 1,400 feet northeast of southwest line of M. Anderson Survey, A-5.

Jones County

Phillips Petroleum Co.'s No. 5 Joe Winters, 330 feet south and 2,298 feet east of northwest cor. of Section 19, Block 19, T.&P.R.R. Survey. Rhodes & Highers' No. 1 E. Howell, 246 feet south and 275 feet east of northwest cor. of Section 20, Block 19, T.&P.R.R. Survey. J. N. Sloan and others' No. 1 W. C Bennett, 1,050 feet north and 150 feet east of SW cor. of SE of Section 42, Orphan Asylum Land.

Montague County

Bridwell & Heydrick's No. 5 Mrs. M. H. Salmon-A, 475 feet south and 775 feet east of NW cor. of their 62-acre "A" lease out of F. Robertson Survey, A-620. Carter and Rycade Oil Corp.'s No. 6. R. W. Cunningham and others, 450 feet south and east of NW cor. of their 40-acre lease and located in L. B. Norton Survey, A-574. Continental Oil Co.'s No. 28 J. W. Maddox-A, 150 feet north and east of the most southerly southwest cor. of its "A" lease out of S. H. Arnold Survey, A-5. Oil Operators Trust Co.'s No. 4 E. J. Bouldin, 1,010 feet north and 1,249.4 feet east of SW cor. of the C. Chacon Survey, A-140, being 466 feet south and 1,249.4 feet east of NW cor. of its 24.4-acre lease. Gulf Production Co.'s No. 14 R. W. Cunningham and others, 450 feet south and 150 feet west of NE cor. of its 61 08-acre lease out of J. N. Hodges Survey, A-1,160.

McCulloch County

Tulsa Drilling Co.'s No. 1 J. W Kirkpatrick, 2,640 feet north and 620 feet west of SE cor. of James Henderson Survey.

Pecos County

Kirby Petroleum Co.'s No. 1 J. H. Tippett, 2,602 feet north and 1,864 feet east of SW cor. of Section 40, Block 194, G.C.&S.F. Survey. The California Co.'s No. 14 I. G. Yates, Lease 1, 1,240 feet north and 560 feet east of SW cor. of Section 34, Block 194, G.C.&S.F. Survey. Same company's No. 15 I. G. Yates, Lease 1, 1,217 feet north of north line of Section 33, Block 194, G.C.&S.F. Survey, and 1,954 feet east of west line of Section 34. Same company's No. 16 I G. Yates, Lease 1, 708 feet north of north line of Section 33, Block 194, G.C. &S.F. Survey, and 1,954 feet east of west line of Section 34.

Reagan County

The Texas Company's No. 3 J. D. Sugg, C of Section 165, Block 2, T.&P. R.R. Survey.

Runnels County

R. B. Summers and others' No. 1 J. W. Reese, 660 feet south and 720 feet west of SE cor. of the M. J. Parramore Survey No. 26, and located in the Day Land & Cattle Co. Survey.

Wichita County

Bridwell & Mayfield's No. 1 L. Sparks, 9,047 feet south and 450 feet east of the NW cor. of Section 1, C.T.R.R. Survey, A-51. Chester Everts' No. 2 N. D. Cooper, 150 feet south and 100 feet east of NW cor. of Section 292, Waggoner Colony Subdivision. L. P. Hammond's No. 3 B. N. Ferguson, 150 feet south and 450 feet east of NW cor. of Lot No. 15, D.L &C. Survey, A-712. Henry Hobbs' No. 2 G. R. Hoge, 588 feet south and 1,410 feet west of NE cor. of Block 39, Kemp Wichita Valley Land. Shappell Oil Co.'s No. 14 Kemp & Kemper-A, 850 feet south and 450 feet west of NE cor. of Block 19, Kemp Wichita Valley Land. The Texas Company's No. 346 W. T. Waggoner, 770 feet south and 642 feet west of NE cor. of Section 33, Block 5, H.&T.C. Survey, A-108. Same company's No. 347 W. T. Waggoner, 1,980 feet north and 652 feet west of SW cor. of Section 2, Seale & Morris Survey, A-535, and located in Section 148, H.& T.C. Survey, A-784.

Gulf Production Co.'s No. 19 G. Jennings, 150 feet south and west of NE cor. of its 160-acre lease out of Section 8, H.T.&B. Survey, A-475. The Texas Company's No. 348 W. T. Waggoner, 1,930 feet north and 8 feet east of SW cor. of Section 2, Seale & Morris Survey, A-535. Same company's No. 349 W. T. Waggoner, 1,427 feet north and 332 feet west of SW cor. of Section 13, H.T.&B. Survey, A-137, and located in Section 148, H.&T.C. A-784. The Texas Co.'s No. 350 W. T. Waggoner, 1,650 feet south and east of SW cor. of Section 19, G.C &S.F. Survey, A-359, and located in Section 1, T.C.R.R. Survey, A-632. Vergate Oil Co.'s No. 3-Deep, J. A. Watkins, 1,250 feet north and 450 feet east of SW cor. of Block 46, Kemp Wichita Valley Land.

Wilbarger County

Consolidated Oil Co.'s No. 1 W. P. Bates, 1,340 feet south and 1,828 feet west of NE cor. of Section 42, Block 2, H &T.C. Survey. Consolidated Oil Co.'s No. 1 W. T. Waggoner, Section 24, 150 feet south and west of NE cor. of south half of NE of Section 24, Block 2, H.& T.C. Survey. Consolidated Oil Company and J. S. Cosden's No. 10 W. T. Waggoner, Section 57, 900 feet south and 450 feet west of NE cor. of NW of Section 57, Block 4, H.&T.C. Survey. Golding-Cochran and others' No. 1 W. T. Waggoner-F, 205 feet south and west of NE cor. of SW of NW of Section 8, Block 17, H.&T.C. Survey. Staley-Wynne & Co.'s No. 1 W. T. Waggoner, Section 7, 150 feet north and east of SW cor. of Section 7, Block 17, H.&T C. Survey. The Texas Company's No. 2 W. T. Wag-

goner-E, 2,104 feet south and 160 feet east of NW cor. of Section 24, Block 4, H.&T.C. Survey.

Winkler County

Pure Oil Co.'s No. 6 Grisham-Hunter, 2,310 feet north and 330 feet east of SW cor. of Section 41, Block B-5, School Land. Republic Production Co.'s No. 4 Grisham-Hunter-B, 2,310 feet north and 990 feet west of SE cor. of Section 41, Block B-5, School Land. Roxana Petroleum Corp.'s No. 4 Grisham-Hunter-D, 1,650 feet south and 330 feet west of NE cor. of Section 41, Block B-5, School Land. Same corporation's No. 5 Grisham-Hunter-D, 2,310 feet south and 1,650 feet west of NE cor. of Section 41, Block B-5, School Land. Same corporation's No. 6 Grisham-Hunter-D, 2,310 feet south and 990 feet west of NE cor. of Section 41, Block B-5, School Land. Same corporation's No. 6 Ida Hendrick-C, 990 feet south and 1,650 feet east of NW cor. of Section 29, Block-B,5, School Land. Same corporation's No. 7 Ida Hendrick-C, 990 feet south and east of NW cor. of Section 29, Block B-5, School Land.

Young County

Allday Oil Corp.'s No. 3 C. W. Johnson, 450 feet north and east of SW cor. of Lot No. 14, E. W. Sargeant Survey, A-253. Alexander and others' No. 2 C. W. Johnson, 150 feet south and 450 feet east of NW cor. of Lot No. 15. E. W. Sergeant Survey, A-253. Panhandle Refining Co. and Riggs' No. 1 A. E. Catman, 150 feet south and east of NW cor. of south 80 acres of north 157 acres of east 317 acres of Section 317, of Section 2, B.B.B.&C. Survey. Pennell Oil Co.'s No. 1 J. L. Boone, 150 feet south and east of NW cor. of Section 1, B.B.B.&C. Survey, A-34. E. C. Reed and J. C. Wootten's No. 1 M. A. Stewart, 150 feet north and 1,000 feet east of SW cor. of south half of Section 28, Young County School Land, A-1,284. Reed & Wootten and others' No. 1 J. B. McKinley, 150 feet north and west of SE cor. of south 25 acres of east 65 acres of Section 1,489, T.E.&L. Survey. W. R. Stafford's No. 1 J. L. Boone, 150 feet north and east of SW cor. of SW of NW of Section 1, B.B.B.&C. Survey, A-34. C. Williams & Willis' No. 1 J. A. Horton, 150 feet north and east of SW cor. of south 60 acres of west 132.5 acres of Section 1,906, T.E.&L. Survey. Texas Pacific Coal & Oil Co.'s No. 4 C. L. Donnell, 850 feet south and 900 feet east of NW cor. of Section 1,211, T.E.&L. Survey. Same company's No. 5 C. L. Donnell, 250 feet south and 200 feet west of NE cor. of Section 1,211, T.E.&L. Survey.

Corrected Locations for the Week Ending February 22

Brown County: Clark-Buffalo Oil Co.'s No. 1 Brown County fee land, 1,620 feet south and 1,950 feet east of NW cor. of J. Kenny Survey No. 624. Cranfill & Reynolds' No. 1 E. DeBush-B, 2,050 feet south and 4,750 feet west of NE cor. of Jose Padilla Survey No. 646, A-739. Harold Stanley's No. 1 J. R. Lewis, 1,350 feet north and 1,200 feet east of SW cor. of J. R. Lewis 400-acre tract out of J. Kenny Survey No. 624. M. L. Richards' No. 1 A. D. Hutton, 150 feet north and west of SE cor. of west 20 acres of south 40 acres of west 80 acres of J. A. Nobles Survey, A-1,947.

Crockett County: J. S. Cosden, Inc.'s No. 1 Paul Perner, 330 feet north of south line and 330 feet east of west line of Section 36, Block 2, I.&G.N. Survey.

Pecos County: Mid-Kansas Oil & Gas Co.'s No. 10 I. G. Yates-B, 864 feet north and 441 feet west of NE cor. of west 320 acres of Section 60, and located in Section 61, Block 1, I.&G.N. Survey. Same company's No. 12 I. G. Yates-B, 1,028 feet north and 1,011 feet west of NE cor. of west 320 acres of Section 60, and located in Section 61, Block 1, I.& G.N. Survey.

Wilbarger County: Fain-McGaha Oil Corp.'s No. 1-A W. T. Waggoner-O, 205 feet north and 395 feet east of SW cor. of NE of NW of Section 50, Block 4, H.&T.C. Survey. Tower & McKanna, Inc.'c, No. 2 W. T. Waggoner, 666 feet south and 200 feet west of NE cor. of west 80 acres of south 160 acres of north 240 acres of east 420 acres of Section 30, Block 4, H.&T.C. Survey.

PRINCIPLES OF CONTACT FILTRATION

(Continued from Page 148)

In order to adequately compare the two methods of filtration, the dual purpose of contacting must be given consideration. It is an accepted fact that acid treatment followed by contact filtration to neutralize the acid oil gives a superior product to that obtained by acid treatment, chemical neutralization and percolation. Neutralizing by contact filtration overcomes all the emulsion troubles resulting from neutralizing with chemicals and shortens and simplifies the treating operation. The equipment costs but little more than the additional agitator capacity required for chemical neutralizing and the operation is positive and subject to accurate control.

The contact filter therefore plays an important role in the production of high quality lubricants which can not be performed by the percolating filter. A comparison of the two methods should, therefore, be limited to decolorizing after neutralization.

In order to compare the two methods let us assume that a given cylinder stock neutralizes by contacting to a color of one-half Tag-Robinson and the problem involved is to decolorize it to a finished color of 1. This can be done, first, by using sufficiently more clay in the first contact to finish a 1 color. This will require contacting to 1¼ color to allow for darkening during dewaxing and reducing. From Figure 4 it will be seen that this additional Riverside clay amounts to about 14 per cent. Second, the oil can be finished as one-half color and then recontacted to make 1 color. Figure 1 shows that this would require 14½ per cent of Riverside clay. Third, the one-half color finished oil can be percolated through coarse fuller's earth to give 1 color. Experience shows that this requires about 133 pounds of Riverside clay per barrel when using an average clay (1 to 40 burns if a multiple hearth furnace is used).

Table No. 1 represents the comparative cost of such an operation. The direct expenses cover labor, steam, power, normal maintenance, etc., but do not include plant overhead or investment charges.

In the first case the extra clay is added at the time of the first contact and therefore carries only a nominal operating expense to cover the extra labor, pressure filtering, etc. However, if the oil is decolorized at this point the 20 per cent petrolatum content must also be treated, thus materially increasing the cost of decolorizing per barrel of finished bright stock.

These costs indicate that until a method of reclaiming used fine clay or until a relatively cheap, highly efficient decolorizing material is available, the percolating filtration method will prove more economical for final decolorization.

The contact process, however, fills an important role in the production of high quality lubricants which cannot be performed by the percolating filters, and it therefore seems that a combination of the two is the correct solution to the problem.

TABLE 1
Relative Cost of Decolorizing Bright Stock From One-Half Tag-Robinson Color

	1 Single Contact	2 Double Contact	3 Percolation
Clay used per barrel (pounds)	44	46	133
Clay cost per ton	$14.00	$14.00	$20.00
Times used	1	1	40
Net cost per ton	$14.00	$14.00	$ .50
Cost burning	...	...	$ .85
Clay cost per barrel of charge	$.308	$.322	$.090
Cost per barrel direct oper.	$.050	$.196	$.270
Total cost per barrel charge	$.358	$.518	$.360
Yield finished bright stock (per cent)	80	98	98
Cost of decolorizing 1 bbl. fin'd bright stock	$.448	$.528	$.367

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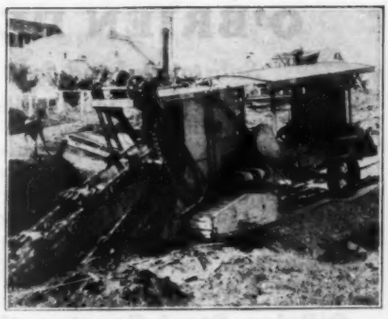

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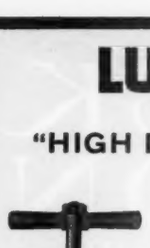

Fig. 720, Globe

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Non-shock Pressure, 4000 lb.

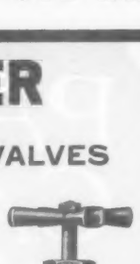

Fig. 721, Angle

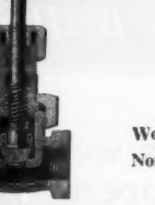

Fig. 815
Horizontal Check

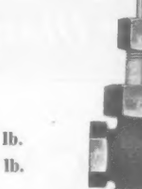

Fig. 816
Angle Check

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STAGGERING DIFFICULTIES OVERCOME IN CHANGE OF FOREIGN PRODUCTION

NEW YORK, Mar. 3.—The problems of overproduction, conservation and disastrous competition are not the only ones that beset the oil industry. Probably no other unit in the business has been faced with a more staggering and seemingly insurmountable difficulty that has the Pan American Petroleum & Transport Co. during the past two years. This company has invested in Mexico during the past 20 years $100,000,000. It became and still is the largest producer in that country. It built up a gigantic business. On its continued supply of oil depended many of our large industries and a large percentage of the merchant marine. The transition from coal to oil burning in steamships was initiated by that company. The jungles of Mexico yielded to its ingenious organization, and confidence in the financial world developed into 17,000 stockholders.

In 1926 the oil companies in Mexico faced a mandate from the Mexican Government, providing that they must deliver their land titles and accept concessions of limited duration on their properties, although the law specified that foreign corporations might not hold concessions. It is interesting to note that no American company in Mexico ever operated under an oil land concession. The companies, in harmony with American administrations from Wilson to Coolidge, took the position that the new laws of Mexico were confiscatory, and they refused to apply for concessions as required. The penalty for failure to do so prior to December 31, 1926, was forfeiture of rights. Because the companies failed to apply for concessions, the government refused them drilling permits and as a result operations practically ceased, although funds had been appropriated for such drilling. How to carry on under the circumstances was a most serious question, particularly for Pan American. Consideration had of course been given to such an emergency. Plans were speedily evolved. The organization became active in Texas and Venezuela, and the drilling appropriations were applied to these fields instead of Mexico. Intensive development of its Venezuelan properties, comprising some 3,000,000 acres, was commenced.

The changes which have had to be met in connection with this change in source of raw material, have been among the most difficult ever faced by a major oil company. Those who are inclined to look upon the petroleum industry as one in which profits come easy without labor, should study the manner in which officials of the company have met the situation above outlined.

Investment in Venezuela

The Pan American Petrolum & Transport Co. in 1925 became a big factor in Venezuela when it acquired most of the stock of the Lago Oil & Transport Co., which, through Lago Petroleum Co., has the 3,000,000-acre concession mentioned, covering the bed of Lake Maracaibo. At the time of this acquisition, Lago had a production of approximately 20,000 bbls. a day. The Pan American company has invested $25,000,000 in Venezuela and as a result of this money and effort so expended, the Lago Petroleum Co. has a potential production of about 150,000 bbls. daily, with an estimated reserve worth over $200,000,000.

The evident solution of the problem of raw material has been only one part of the work necessary in connection with the change from Mexico to Venezuela. The factors of transportation and refining which come between crude oil production and the markets are ones which many are inclined to overlook. The problems involved in both divisions are particularly difficult when the principal source of raw material jumps from one country to another, within two years. The success Pan American has had is indicated by the fact that the company is supplying its customers with more Venezuelan oil than Mexican, and probably will produce more crude oil in Venezuela than it has in Mexico to date.

The Pan American Petroleum & Transport Co. owns the second largest fleet of ocean-going oil tankers flying the American flag. To shift a large part of the fleet from the Mexican to Venezuelan service was merely a matter of re-routing the vessels. It did not involve any great new outlay, except for the construction of additional terminals. However, Venezuela has a transportation problem of its own, when it comes to shipping crude oil out of the country. Lake Maracaibo, which opens out into the Caribbean Sea, is too shallow for ocean-going tankers, and its mouth is blocked by a sand bar, which permits the entrance into the lake only of shallow-draft tankers, capable of transporting about one-fifth as much oil as the average large oil tanker. Pipe lines from the Venezuelan oil fields to the seaboard are generally impracticable.

To help this situation engineers of the Pan American company, together with shipbuilders, designed and had constructed shallow-draft tankers capable of carrying about 15,000 bbls. each. When its new lake tankers are delivered early this year the daily lifting capacity of these boats will be 85,000 bbls.

The question of sea-loading terminals was also difficult. In the absence of an ideal site on the Venezuelan coast, the Pan American company decided to construct a terminal on the island of Aruba, a Dutch possession about 50 miles from the coast of Venezuela. This situation contrasts with that of many companies in Mexico, which produced oil in the Golden Lane, piped it about 20 miles to the sea coast, and loaded it on ocean-going vessels from special sea-loading lines. Because it has a refinery at Tampico, Pan American handled its Mexican production by piping it to that port through three 10-inch lines a distance of about 100 miles.

Plans For New Refinery

The transportation problem invloved in the partial shift from Mexico to Venezuela was small, however, compared with the refining problem. Pan American, through its Mexican subsidiary, owns one of the largest refineries in the world at Tampico. Its capacity is 120,000 bbls. daily. This plant had been supplying the Atlantic Seaboard trade of the company almost entirely, up to the advent of Venezuelan crude, in addition to some of the company's Gulf Coast and South American trade. The company also has a large refinery at Destrahan, La., adjacent to and in a position to supply the Gulf Coast and Mississippi Valley markets.

The first step in the solution of the problem of refining the company's Venezuelan crude oil was to ship a large part of it to Tampico and Destrahan, from which plants the refined oil products were shipped to adjacent and Atlantic Seaboard markets. This plan was found practical only up to a point dictated by the distance of transportation from refinery to markets, and was not found especially adapted for supplying the Atlantic Coast.

This latter field is now being supplied largely by shipping crude oil to several Atlantic Coast refiners, having it refined and having the products returned to Pan American. The amount being supplied in this manner is understood to approximate 40,000 bbls. daily.

It is not usual in the oil business for refining companies to handle crude oil at so much per barrel for others, but it has been done for many years on the Atlantic Coast and to a greater extent than in any other refining center. California crude oil has been handled on the Atlantic Seaboard in this way from time to time. In some instances, large shipping companies using bunker fuel oil have purchased California crude, shipped it to the Atlantic, had it refined by an oil company, and received only the bunker fuel oil content back. But under the present arrangement, the Pan American receives back the entire run of products. These products are marketed principally on the Atlantic Coast, Pan American be-

ing one of the largest marketers of fuel oil on the seaboard, and also a marketer of gasoline through its large chain of stations.

This plan of having the crude oil refined for it is considered temporary. The company is contemplating the construction of a new refinery for handling Venezuelan crude oil. It is not yet certain where the plant will be constructed, but in view of the large potential production of the company in Venezuela, the refinery will probably be a large one. Reports that it would be built on the island of Aruba are premature.

The construction of this proposed plant will mark the final solution of the problems involved in the shift to Venezuela, but it is probable other considerations than the Venezuelan production will guide the choice of a site. Pan American has, as already mentioned, made substantial investments in Texas as a result of the Mexican situation, and officials of the company are very sanguine about developments on some of its West Texas holdings, confident that they have proved up substantial reserves, particularly in Winkler County.

Development of Pan American

The Pan American Petroleum & Transport Co. was organized February 2, 1916 as a holding company for Mexican Petroleum Co., Huasteca Petroleum Co. and other organizations controlled by Edward L. Doheny and associates. These men were pioneers in two respects. They were among the first to develop oil production in Mexico, and through their organization, Pan American Petroleum & Transport Co., were among the first to introduce the use of fuel oil on the Atlantic Seaboard of the United States in land and marine power and heating plants to replace coal.

In March, 1925, the Standard Oil Co. of Indiana, in association with Blair & Co., bankers, and the Chase National Bank of New York purchased control of the Pan American Petroleum & Transport Co. and Edward L. Doheny withdrew from active association in its affairs. Standard Oil Co. of Indiana took over the management but many who had participated in the development of the company continued in its service.

The "Stanolind Record," organ of the Standard Oil Co. of Indiana, said of this acquisition:

"Some idea of the added strength which the Pan American deal gives to the Standard Oil Co. of Indiana may be obtained from the following brief enumeration of the properties involved in the transaction:

"1. A fleet of ocean-going tankers, comprising in Pan American's fleet the second largest privately owned tanker fleet flying the American flag, having a gross tonnage of about 225,000 tons.

"2. Between 1,500,000 and 2,000,000 acres of producing or prospective oil lands in Mexico. Also one of the biggest refineries in Mexico at Tampico, and a complete pipe line and sea-loading system.

"3. In Lago Petroleum, Standard Oil Co. of Indiana obtains an interest in a concession in Venezuela covering Lake Maracaibo.

"4. An oil refinery at Destrahan, La., with a capacity of refining 25,000 bbls. of crude per day.

"5. Comprehensive marketing facilities along the Atlantic and Gulf coasts of the United States, as well as in South and Central America, for fuel oil and gasoline.

"The Pan American Petroleum company is the largest marketer of bunker oil on the Atlantic Seaboard. Much of the fuel oil sold by the companies in that territory is bought from Pan American. Its deliveries to the Atlantic Seaboard alone average 15,000,000 to 20,000,000 bbls. a year."

PRAIRIE OFFICE AT MIDLAND

MIDLAND, Tex., Mar. 1.—Plans have been completed for a new two-story building to be occupied by the Prairie Oil & Gas Co. at Midland. The Prairie, under the management of W. A. Yeager, will occupy the upper floor. The West Texas Gas Co., a subsidiary of the Prairie, will occupy the first floor.

MORE PECOS COUNTY SUITS HAVE BEEN FILED

FORT STOCKTON, Tex., Mar. 1.—Eighty-eight cases involving royalty and mineral interests and lease ownership on approximately 33 sections of Pecos County land were filed in the District Court of Pecos County by W. H. Colquitt, receiver, and others vs. Henry C. Monroe and others.

The District Court of Pecos County in September appointed a receiver to take charge of the estate of Mrs. M. A. Monroe (Smith) and granted an injunction restraining W. A. Smith from exercising any control of the estate.

W. A. Smith and M. A. Smith appealed from the injunction and appointment of a receiver, and while the Court of Civil Appeals at El Paso had previously confirmed the trial court's action in the issuance of the injunction, in an opinion dated February 9, the same court dismissed the appeal of W. A. and M. A. Smith, wherein they complained of the appointment of a receiver on the ground that the trial court had not entered a final order, but merely reserved its action on the motion to vacate the receivership until a later date, and the appeal would not affect such an order because it was not final.

The suits filed in the Pecos County District Court point out the qualifications of the receiver, allege among other things that the said Mrs. M. A. Monroe (Smith) at the time of the filing of the original petition which led to the appointment of a receiver was by reason of both bodily and mental infirmity incapable of caring for her rights in the litigation pending, that such incapacity has at all times since existed.

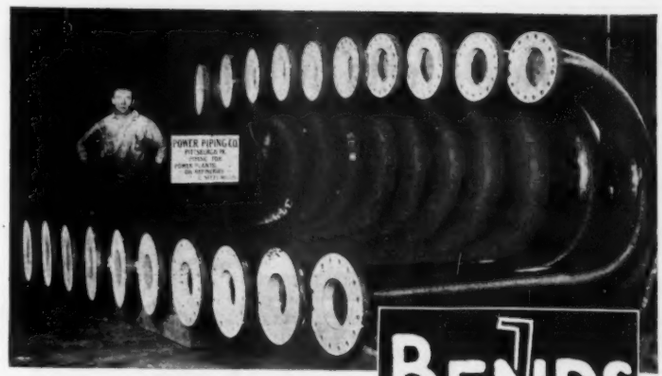
Because he was requested to join the plaintiff in these suits and has refused and still refuses to do so, W. A. Smith has been made a party defendant therein, the petitions state.

Suits to recover royalty and mineral interests were filed against the following defendants:

Marland Employes Royalty Co., R. H. Compton, Jr., E. C. Marrs, I. G. Yates, Dave Daube, Mrs. Mollie Flowers, O. J. Flowers, C. C. McBurnett, O. J. Connell, George H. Anderson, P. L. Childress, D. G. Dunbar, Federal Royalty Co., H. B. and D. S. Davenport, B. L. Wigton, O. L. Long, F. E. Miller, G. S. Davis, R. J. Metcalf, Sam K. Vierson, J. R. Parten, L. R. Kershaw, McMan Oil & Gas Co., Henshaw Oil Corp., J. A. Chapman, Nellie M. Hill, J. B. Stubenbord, E. Edward Hurja, Gustave Obermeyer, W. H. Wortham, D. K. Harrison, Henshaw Oil Corp., J. A. Chapman, H. B. and B. S. Davenport, K. N. Hapgood, Max Gutman, Benjamin Gutman, Empire Gas & Fuel Co., A. M. Hagan, W. M. Hemphill, B. T. Quarles, John F. Lane, Levi Smith, E. C. Stearns, Gertrude Smith Chilton, H. D. McCracken, K. N. Hapgood, Benjamin Gutman, Nellie M. Hill, Ohio Fuel Co., H. B. Heering, Bert Smith, Irvin L. Wilson, El Capitan Oil Co., Atlantic Oil Producing Co., North Central Texas Oil Co., Sam K. Vierson, Willard Foster, George W. Snedden, Freeland Snedden Co., Delmar Oil Co., Osage Development Co., C. L. Freeland, E. W. McCrary, William M. Bertles, James H. Gardner, Robert M. Galer, George McMillan, Lewis Z. Harrison, David Zoglin, Leopold L. Orkin, Julius F. Pitassy.

The following cases were filed against defendants holding lease ownership:

Gulf Production Co., W. R. Whiteside, Southern Purchasing Co., Kirby Petroleum Co., Devonian Oil Co., Dixie Oil Co., The Texas Company, Gus W. Wortham, Sinclair Oil Co., F. E. Miller, California Co., Roxana Petroleum Corp., Pure Oil Co., Phillips Petroleum Co., J. W. Quinn, Transcontinental Oil Co., Mid-Kansas Oil Co., Prairie Oil & Gas Co., Humble Oil & Refining Co., and H. P. Nichols.



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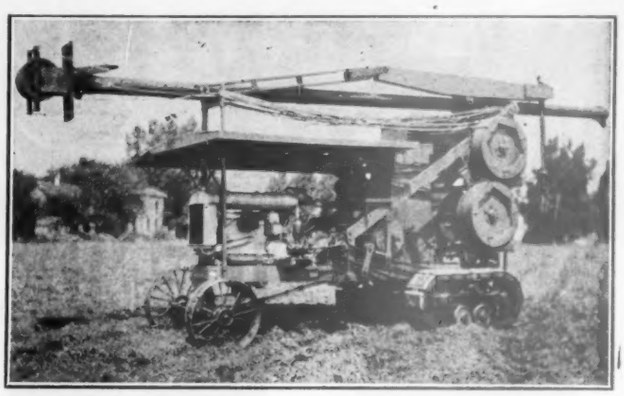

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VENEZUELA EXPECTED TO PRODUCE 90,000,000 BARRELS THIS YEAR

By H. J. Wasson*

At the lose of the year Venezuela was producing at the rate of 205,000 bbls. per day, making it the third country in the world in present daily production. For the year, the total was close to 64,000,000 bbls., an increase of about 70 per cent over the 37,000,000 bbls. produced in 1926. All of the 1927 production came from fields opened up previously.

While no new fields were added to the list of shippers, the past 12 months' wildcatting yielded a fair quota of new discoveries which, in the light of present results, may be considered likely sources of production in due time. Altogether three such promising finds were made.

Of first importance, at least for the immediate future, is the completion by the Lago Petroleum Corp. of the San Matias well, 4 miles north of the present edge of the Lagunillas Field. Though rated as only a 125-bbl. well, at 3,217 feet, it indicates a probable extension of the field over the intervening 4 miles between the two.

The two other wildcat discoveries of importance were the Los Manueles well in the District of Colon, which has in all probability opened up a new field about 7 miles north of the present Tarra operations; and the Hombre Pintado well of the Standard of Venezuela, in the State of Falcon, which is considered to be a promising development. Neither of these two discoveries will appreciably affect production in the Lagunillas Field was 4 miles away, and in La Rosa, to the north, 10 miles away. The well thus is about 3 miles from the center of the 14-mile stretch lying between the most northerly Lagunillas Field well, and the most southerly well at La Rosa. The finding of oil in this well makes it seem reasonably probable that the Lagunillas Field extends for at least 4 miles north, and to a lesser degree probable that the La Rosa productive area extends a further 10 miles south. In fine, it appears that this well has greatly strengthened the probability that these two fields will eventually join together. To many it will seem hardly credible that any single wildcat well could prove such an extensive stretch of territory; however, when it is recalled that both La Rosa and Lagunillas lie along the same major monocline, and that so far as is now indicated there are no closing contour lines separating the two fields, it must appear that the intervening monoclinal territory stands an excellent chance of being productive even before drilling has established this as a probability.

The partial confirmation of this probability, though not unexpected, stands out as one of the momentous accomplishments of the year in the Maracaibo Basin. It forecasts the future development of an oil field some 30 or more miles long, in which substantial areas of 50,000 bbls., and even

VENEZUELAN OIL STATISTICS—1927

	Drilling Summary: Wells Drilled Prior to 1927 Producers	Wells Drilled Prior to 1927 Dry Holes	Wells Drilled During 1927 Producers	Wells Drilled During 1927 Dry Holes	Total Wells to Jan. 1, 1928 Producers	Total Wells to Jan. 1, 1928 Dry Holes
Mene Grande	95	3	42	0	137	3
La Rosa	226	8	92	2	318	10
El Mene	104	37	27	17	131	54
La Paz	21	3	5	0	26	3
Concepcion	45	1	19	0	64	1
Ambrosio	20	2	22	1	42	3
Punta Benitez	3	0	26	3	29	3
Lagunillas	7	0	64	0	71	0
La Tarra	10	5	5	3	15	8
Rio de Oro	3	0	1	0	4	0
Guanoco	6	0	0	0	6	0
Wildcat operations	*5	**82	†4	†18	*9	**100
Total	545	141	307	43	852	184

	Av. Depth of Hole Drilled During 1927	Wells Drilling at End of 1927	During 1927	Cumulative Production to End of 1927	Gravity of Oil Degrees Baume
Mene Grande	2,625	9	9,874,531	38,179,413	18
La Rosa	2,684	8	19,283,208	53,450,069	25
El Mene	1,100	4	2,535,023	8,472,132	36
La Paz	1,500	0	277,371	1,306,428	25
Concepcion	1,500	0	523,928	1,637,767	36
Ambrosio	2,370	3	272,428	2,001,746	24
Punta Benitez	2,530	4	1,146,057	1,279,741	26
Lagunillas	3,520	13	28,789,918	29,997,831	17.5
La Tarra	1,470	4	100,000	§175,000	30
Rio de Oro	3,105	0	25,000	§50,000	27
Guanoco	....	0	614,300	§860,906	16
Wildcat operations	....	16	.....	.....	..
Total	....	61	††63,391,764	137,411,032	..

*The discovery wells of the several fields are credited to the fields themselves. The five wildcats here listed as producers are the shut-in wells: Mouav and Moneb No. 1 in eastern Venezuela; Zambapalo No. 2 in northern Perija; El Manon No. 1 in Falcon, and Libertador No. 2 of the Northern Venezuelan Petroleum Co. in eastern Falcon.

**Contains many holes abandoned because of drilling difficulties; also many that made gas and/or oil, but in noncommercial quantities. Several of these dry holes would, however, have been rated as producers in certain United States localities.

†The year's successful wildcats are: San Matias No. 1, Hombre Pintado No. 1 and Los Manueles No. 1.

‡Includes several holes abandoned because of drilling difficulties.

††Accurate to within 1 per cent. Error in production figures comes through difficulty in accounting for oil consumed in drilling, losses from fires, etc., and in conversion into barrels of the official reports to the government, which are made in terms of metric tons.

§All the production from the Tarra and Oro Fields is consumed in drilling or held in storage, except for a few hundred barrels sold to the Encontrados Light Co. There are no pipe line of other facilities available for handling oil from either of these fields in commercial quantity.

‖This is a very heavy crude requiring a special tanker for its transport. It is used as a flux in the manufacture of prepared asphalt products.

production during 1928, as the Manueles area must await the carrying out of a general plan for the exploitation of the District of Colon, a problem requiring time. The Hombre Pintado area is being tested further, but doubtless several wells will be put down before anything definite will be done towards making the pipe line arrangements that must necessarily precede the commercial exploitation of the field.

May Join Two Fields

The San Matias well is a highly significant development. It is located along the trend of the La Rosa-Lagunillas producing formations, and when drilling started,

*Before A.I.M.E. New York meeting. Copyright, 1928, by the American Institute of Mining and Metallurgical Engineers, Inc.

100,000 bbls. an acre production may be confidently expected.

It is much too early to hazard a guess as to the quantity of oil this La Rosa-Lagunillas area will produce, but as a tentative estimate, there seems to be a good likelihood that 40,000 acres of productive territory are in sight, and that an average of 25,000 bbls. an acre will be exceeded. These figures combine to make a total of a billion barrels. This quantity, though possibly much too low, or slightly too high, is close enough to indicate the order of magnitude of the situation, and this should compel full recognition of the La Rosa-Lagunillas Field whenever the statistical curves of the oil industry are being projected into the future.

The activities during the past year

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along the East shore of Lake Maracaibo, which include the Ambrosio, La Rosa, Punta Benitez, and Lagunillas Fields, and the above-mentioned intervening territory, were notable in many respects. The Lagunillas Field, at the southern extremity of this sector, though but little over a year old, jumped into first place among the Venezuelan fields with 29,000,000 bbls. for the year, from 71 wells. This field is now nearly 6 miles long, with good production proved at both extremities, and as yet no dry hole having been encountered.

La Rosa Extension

The La Rosa Field was substantially extended both to the north and south by the drilling of over 90 wells. It now seems certain that it will merge with the producing areas known as Ambrosio and Punta Benitez, lying respectively to the north and south of La Rosa proper. Henceforth, it would seem advisable to refer to these three localities as one, under the general designation "La Rosa."

The developments in the Ambrosio end of the La Rosa Field were, during the year, unexpectedly good. Some of the older wells were reworked into good producers, and a number of new wells having initial productions of 2,500 bbls. and over, were completed. The drilling continued throughout the year, and 23 wells were completed; however, very little production was drawn from Ambrosio, as all the wells were shut in after brief initial production tests.

In Punta Benitez, the southern extension of the La Rosa Field, 28 new completions were recorded, but these operations were not conspicuously successful. Apparently the sand conditions in the vicinity of Punta Benitez are not as promising as is the case in the La Rosa Field proper. Such variations in yield are, of course, to be expected in any large productive area, and perhaps the most surprising thing is the absence to date of any sizeable spots of definitely barren territory.

Elsewhere in the Maracaibo Basin developments were carried on at about the same rate as during the preceding year. These activities are summarized in the accompanying table. From the table it will be seen that aside from the Lake shore pools there are seven localities listed as producing fields. These are: Mene Grande, El Mene, La Paz, Concepcion, La Tarra, Rio de Oro, and Guanoco.

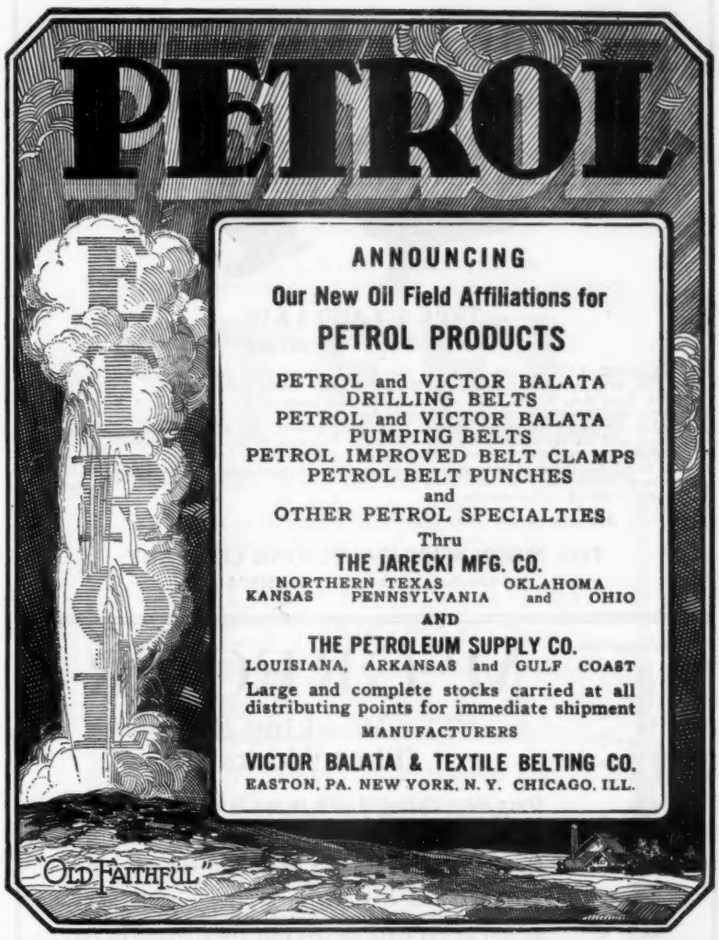
La Paz and Concepcion were shut down during the greater part of the year, this procedure being possible due to the circumstance that they are one-company fields. The wells in both these fields are of the 50 to 200-bbl. type, but the grade of the oil is higher than that of the La Rosa crude, and the wells stand up satisfactorily.

District of Colon

The La Tarra and Rio de Oro fields, in the District of Colon, are located in the extreme southeastern part of the Maracaibo Basin. These areas are comparatively remote from the main lines of communication, and their development has been slow—though the presence of oil was established as far back as 1915. Since that time, nearly 30 wells have been drilled by the Royal Dutch in this Colon area, but no transportation facilities have yet been provided. The delivery of this oil to the Lake shore will require some 80 miles of pipe line, which must pass through a difficult, swampy jungle country for the most part; so it is evident that a large reserve of "oil in sight" must be proved before commercial exploitation is warranted.

During the year the Colon Development Co. (the Royal Dutch operating subsidiary) carried out extensive survey work, considered to be the initial steps toward the working out of a transportation plan which in all probability will be carried out in the not distant future.

In the El Mene Field, production was held steady at about the same rate as during the preceding year, viz: 2,500,000 bbls. The area of the producing territory was not greatly increased, but a few wells of better than average output were found, and the old wells continued to stand up in excellent manner, so that there were



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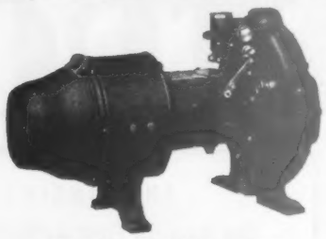

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Mene Grande

The Mene Grande Field continued its substantial output during the year, recording a production of over 9,000,000 bbls., the largest in its 11 years of life. The field limits were not extended much beyond the outlying semi-wildcats completed in 1926; however, the edge wells that were completed, were for the most part satisfactory producers, and the field is apparently no nearer to being delimited than was the case at the end of last year. The most notable completion was No. 105, on the west side of the field, in territory heretofore thought to be of doubtful prospective value. This well is the deepest producer in the field, 4,020 feet, and since its completion in October has averaged around 4,000 bbls. a day. This is the first well drilled to the west of the field in 3 years, and opens up rather unexpected possibilities in this direction. It also quite effectively disturbs the tentative production limit line that many observers of the situation had drawn through the present western edge wells. At this writing it looks like the great seepage area outlining the north edge of the field marks the only direction toward which important extensions cannot be expected.

The feild started the present year, the twelfth year of its productive life, making 50,000 bbls. a day. This is the most it has ever made, but it is thought the actual peak production will not be passed for several years. Being a one-company operation, the production rate is controlled more by market requirements than by the potential capacity of the wells.

During the year eight strings of tools were kept in operation, and 42 wells were completed. This scale of operations presents an interesting comparison with the rate of activity commonly witnessed in our prolific American fields. In Seminole, for example, 400 drilling operations built up a production of 500,000 bbls. a day, or say 40 operations for each 50,000 bbls., yet, though working in the cream of flush production, the expenditure of drilling effort was five times greater than that expended in the 11-year-old field of Mene Grande to attain approximately the same relative tonnage of crude. This is not offered as an invidious comparison directed in criticism against what has taken place in Seminole, but rather as an interesting statistical contrast that would seem to suggest the compilation of similar yard stick factors for other fields. The number of drilling operations per thousand barrels of output must be a function of the profit, and the suggestion is here made to the statistically inclined that they undertake a bit of research along this line in the belief that a useful series of factors can be evolved which, when properly weighed with production cost and oil price constants, will from a broad viewpoint be helpful in appraising the relative oil merits of countries, states, and general areas, even though widely separated geographically and geologically.

The Guanoco Field is the only shipping locality outside of the Maracaibo Basin. This pool is located in Eastern Venezuela, not far from the island of Trinidad. The six small producing wells which compose the field are located near a large asphalt seepage similar in size to the more famous one in Trinidad.

At the close of the year these wells were making about 1,000 bbls. a day of 10 degree gravity oil, which is used in connection with the manufacture of asphalt products.

Prospects in 1928

The question of how much oil Venezuela will produce during the coming year is a matter of considerable importance Heretofore the successive annual increases, though large from a percentage standpoint, did not involve enough oil

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quantitatively to exert any appreciable effect on the general market situation. However, under present market conditions the expected increase from Venezuela will constitute a substantial percentage of the surplus oil that will undoubtedly be produced, and run to storage during the year.

For example, the Venezuelan output in 1928 will probably reach a total of 90,000,000 bbls., or an increase of 25,000,000 bbls. over the 1927 output. If, during 1928, crude storage stocks in the United States are increased by 50,000,000 bbls., as seems not unlikely, then the expansion in Venezuela during the year will have indirectly contributed 50 per cent of the unconsumed surplus.

At present writing it seems certain that Venezuela during 1928 will record a production of at least 85,000,000 bbls. (33 per cent over 1927), though with any sharp dip in the United States production curve having a tendency to stimulate heavy crude prices, there is little doubt but that it would pass the 100,000,000-bbl. mark for the year. Considering the various market factors which may tend to restrain any undue expansion, the author's best estimate, admittedly a guess at this time, is 90,000,000 bbls. for the year 1928.

Wildcat Drilling

Drilling in outlying territory away from the proved fields was not on an extensive scale. Although not notably diminished from the preceding year, it failed to increase due no doubt to the generally poor market situation, and consequent lack of incentive.

The three successful wildcat completions have been mentioned: San Manueles, and Hombre Pintado. Of these, the first was drilled by the Lago Petroleum Corp., and the others by the Colon Development Co. and the Standard Oil Co. of New Jersey, respectively.

Aside from these, there were completed in various parts of the country some 18 dry holes. Four of those were located in eastern Venezuela, the others being in the State of Falcon, and the Maracaibo Basin proper. A few of the holes listed as dry, were abandoned primarily because of drilling difficulties. Some encountered showings of oil in almost commercial quantities, and in fact could doubtless have been made into producers under more favorable marketing conditions. On the whole, the wildcat results for the year show 3 out of 21 successful completions, which may be considered a satisfactory average.

Summing up the results of the year, the thing that most prominently stands out is the large increase in proved and semi-proved reserves that has taken place along the east side lake fields, La Rosa and Lagunillas.

The comparatively small amount of drilling necessary to sharply increase production and reserves at the same time, is also noteworthy and should be borne in mind when considering the economic aspects of the Venezuelan operations.

The wildcatting activities, though recording numerous failures, were successful in the case of nearly 15 per cent of the operations, which in most new regions would be considered exceptionally satisfactory.

Finally, the picture of the year is not complete without a word concerning the general spirit of co-operation between the operating companies themselves and between the companies and the government, that has attended and continues to surround the Venezuelan operations with what might be termed a splendid economic environment.

Much of the production comes from the La Rosa-Lagunillas area, where the ownership is divided between three large companies and competitive conditions prevail. The common boundaries cutting through prolific territory are literally miles in extent, but in all this area there are not over 30 rigs in operation, and these are about equally divided between the three companies. The absence of a more diversified ownership, of course, makes it a comparatively simple matter to arrive at agreements covering the restriction of drilling. Moreover, the absence of any Venezuelan equivalent of

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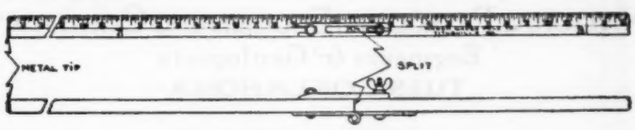

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HUASTECA SHIPMENTS

TAMPICO, Mexico, Mar. 1 (By Trens Agency).—The Huasteca Petroleum Co. continued to lead in petroleum shipments from Mexico during January, showing a gain in exports of nearly 500,000 bbls. compared with the previous month. Of 16 major companies which ship oil from Mexico, 5 showed an increase in January shipments. Nine companies showed a decrease and two made no shipments. Companies in addition to the Huasteca showing an increase were the Empire Gas & Fuel Co., the Penn-Mex Fuel Co., the Minerva Oil Co. and the Mexican Atlas Oil Co. No shipments were made in either month by the New England Fuel Oil Co. or the Montezuma Terminal Corp. The foreign exporting companies of El Aguila and La Corona both showed a decrease over previous shipments, totaling about 150,000 bbls.

Among companies which made no shipments in January, but which shipped in December were the Pierce Oil Corp., The Texas Company of Mexico and the Panuco Boston Oil Co.

LEGAL

SALE OF OIL AND GAS LEASES DEPARTMENT OF THE INTERIOR Shreveport, Louisiana

Notice is hereby given that the following described lands in eight units in the known geologic structure of the Monroe Gas Field, Louisiana, are offered for lease under Section 17 of the act of February 25, 1920 (41 Stat., 437), at the customary sliding scale of 12½ to 33⅓ per cent of the quantity or value of the oil produced, of 12½ to 16⅔ per cent of the value of the gas produced and of 16⅔ per cent of the value of the natural-gas gasoline produced from each unit in accordance with the royalty schedule in the regular lease form, and the rental as required by Section 17 of the said act:

Unit No. 1.
T. 18 N., R. 4 E., Sec. 24, Lot 3, 9.24 acres.

Unit No. 2.
T. 19 N., R. 4 E., Sec. 8, NE¼ of NE¼, 40.00 acres.

Unit No. 3.
T. 19 N., R. 4 E., Sec. 30, Lots, 1, 2, SE¼ NW¼, 106.70 acres.

Unit No. 4.
T. 19 N., R. 5 E., Sec. 10, SE¼ of SE¼, 39.82 acres.
T. 20 N., R. 5 E., Sec. 34, SE¼ of SE¼, 40.07 acres.

Unit No. 5.
T. 19 N., R. 5 E., Sec. 18, S½ of NW¼, Sec. 20, SW¼ of NW¼, Sec. 30, SW¼ of SE¼, 160.47 acres.

Unit No. 6.
T. 20 N., R. 3 E., Sec. 36, Lot 4, 15.80 acres.
T. 20 N., R. 4 E., Sec. 7, NW¼ of SW¼, 39.99 acres.

Unit No. 7.
T. 20 N., R. 4 E., Sec. 1, SE¼ of NW¼, Sec. 13, NW¼ of NE¼, 74.33 acres.

Unit No. 8.
T. 21 N., R. 5 E., Sec. 20, Lot 1; Sec. 29, NE¼ of SW¼; Sec. 33, Lots 2, 3, 4, 124.84 acres; all Louisiana Meridian, Louisiana, total, 651.26 acres.

The units are to be offered separately and are to be so considered as a basis for the payment of royalty, but any lessee may acquire two or more of the units in which the combined acreage does not exceed 640 acres.

The lands are offered for lease subject to the drilling of offset wells by the lessee first on lands adjacent to tracts on which commercial production of gas has been demonstrated, such drilling operations to be initiated within ninety days after the delivery of the executed lease, each succeeding well thereafter as required to be drilled by the terms of the lease shall be spudded in within ninety days of the completion of the drilling well, all drilling operations to be in conformity with the laws of the State of Louisiana and to be continuously and diligently prosecuted in accordance with the Federal oil and gas regulations.

Said leases will be offered for sale by public auction at the Federal Court Room, Shreveport, Louisiana, at 10 a.m., on April 2, 1928. The successful bidder must deposit on the date of sale, with the officer in charge of the sale certified check on a solvent bank, or cash, for one-fifth of the amount bid by him, and file the showing of qualifications to receive a lease required by Sec. 15 of said regulations.

Bidders are warned against violations of the provisions of Sec. 59, U. S. Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders.

The right is reserved to reject any and all bids in the discretion of the Secretary of the Interior.

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for December

Runs

	Month	Dy. Av.
*Prairie Pipe Line Co.	4,588,000	148,000
Gulf Pipe Line Co.	1,599,078	51,583
Texas Pipe Line Co.	1,399,930	45,159
Magnolia Petroleum Co.	2,637,196	85,716
Empire Pipe Line Co.	996,436	32,143
Cosden Pipe Line Co.	922,071	29,745
Sinclair Pipe Line Co.	2,755,257	88,879
Oklahoma Pipe Line Co.	3,524,893	113,706
Other lines	7,812,000	252,000
Total December	25,634,861	826,931
Total November	26,397,277	879,908
Difference	762,416	52,977

Shipments

†Prairie Pipe Line Co.	5,344,811	172,413
Gulf Pipe Line Co.	1,430,717	46,151
Texas Pipe Line Co.	1,026,540	33,114
Magnolia Pipe Line Co.	1,919,704	61,926
Empire Pipe Line Co.	1,173,543	37,856
Cosden Pipe Line Co.	961,649	31,021
†Sinclair Pipe Line Co.	2,760,260	89,039
Oklahoma Pipe Line Co.	3,756,872	121,189
*Other lines	7,471,000	241,000
Total December	25,845,087	833,709
Total November	25,916,037	863,867
Difference	70,950	30,158

Stocks

Prairie Oil & Gas Co.	32,020,000
Prairie Pipe Line Co.	2,500,000
Gulf P. L. Co. & Gypsy Oil Co.	10,305,347
The Texas Company	6,034,332
Magnolia Petr. Co.	7,037,436
Empire P. L. Co.	4,400,438
Cosden P. L. Co.	3,366,765
Sinclair Crude Oil Pur. Co.	20,870,000
Oklahoma P. L. Co.	2,705,692
Carter Oil Co.	15,832,798
Other lines	11,600,000
Total December	116,671,808
Total November	114,952,561
Difference	1,719,247

*Estimated. †Prairie shipments include Texas crude oil and Sinclair shipments include Texas and Wyoming crude oil.

Note: Stocks do not include approximately 6,000,000 bbls. of crude oil held in storage on private tank farms and leases and 1,500,000 bbls. of Texas Panhandle crude oil in storage in Oklahoma and Kansas.

EASTERN PIPE LINES

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for December and January:

	Dec., '27	Jan., '28
Nat. Transit	135,509.47	150,803.87
S.W. Pa. P.L.	83,623.87	86,787.96
Eureka P.L.	357,137.02	361,589.34
Buckeye P.L. (Macksburg)	317,414.13	342,901.40
Buckeye P.L. (Cleve)	11,590.15	10,402.53
Buckeye P.L. (Lima, etc.)	104,528.08	102,753.20
Indiana P.L.	7,062.60	5,916.95
Cumberland P.L.	226,646.29	224,870.56
N.Y. Transit	22,279.13	21,317.31
Tidewater P.L.	184,686.44	181,415.82
Pure Oil	100,041.39	66,257.89
Emery P.L.	56,312.05	52,122.24
Paragon Dev.	25,971.71	21,188.15
Stoll Oil Ref.	12,870.98	11,710.30
Total	1,645,673.31	1,640,037.52
Daily average	53,088.82	52,904.44

Note—Indian Refining Co. also reported other receipts of 373,857.91 bbls. Paragon Refining Co. had other receipts of 184,101.91 bbls. Paragon Development had other receipts of 674.91 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for December and January:

	Dec., '27	Jan., '28
Nat. Transit	433,663.76	469,229.36
S.W. Pa. P.L.	374,669.37	359,339.67
Eureka P.L.	194,894.42	187,006.50
Buckeye P.L. (Macksburg)	134,693.87	140,151.88
Buckeye P.L. (Cleve)	1,211.85	1,221.53
Buckeye P.L. (Lima, etc.)	846,994.35	951,977.88
Indiana P.L.	1,153,206.72	1,170,000.62
Cumberland P.L.	144,182.95	118,509.61
N. Y. Transit	141,302.60	128,724.19
Northern P.L.	176,227.13	185,009.92
Tidewater P.L.	155,569.28	153,752.94
Pure Oil	123,788.25	68,558.07
Emery P.L.	56,494.34	55,982.54
Paragon Ref.	150,536.40	182,235.57
Eureka P.L.	383,972.95	347,862.85
Paragon Dev.	28,229.67	20,658.67
Total	4,479,636.91	4,540,221.80
Daily average	144,504.42	146,465.22

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of December and January:

	Dec., '27	Jan., '28
Nat. Transit	1,187,950.32	1,149,108.83
S.W. Pa. P.L.	739,481.15	675,945.25
Eureka P.L.	1,792,403.70	1,715,048.80
Buckeye P.L. (Macksburg)	435,355.19	426,940.19
Buckeye P.L. (Cleve)	41,685.80	42,161.59
Buckeye P.L. (Lima, etc.)	4,943,834.32	5,132,654.61
Indiana P.L.	644,480.85	637,623.18
Cumberland P.L.	614,861.45	627,679.02
Southern P.L.	409,639.89	378,610.99
N. Y. Transit	609,588.22	753,445.09
Northern P.L.	537,115.66	547,050.82
Pure Oil	369,284.08	59,565.11
Emery P.L.	11,686.27	7,313.38
Paragon Ref.	15,272.42	16,869.68
Indian Ref.	71,648.15	99,260.00
Paragon Dev.	6,009.77	7,433.22
Total	12,340,297.25	12,276,709.76
Increase	400,556.32	
Decrease		63,587.49

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern Pipe Lines at the close of December and January, showing the gross stocks of the above fields:

	Dec., '27	Jan., '28
Pennsylvania	4,225,582.93	3,823,456.32
Lima	1,196,691.27	6,186,868.36
Kentucky	1,009,560.04	1,202,935.45
Mid-Continent	5,855,777.40	996,124.21
Illinois	52,685.61	67,025.42
Total	12,340,297.25	12,276,709.76

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1925	1926	1927	1928
Jan.	56,831	55,630	56,209	52,904
Feb.	60,606	60,394	61,298	.....
March	63,576	61,644	63,247	.....
April	63,062	63,019	60,337	.....
May	59,217	60,580	60,284	.....
June	61,270	61,131	62,757	.....
July	62,639	63,206	58,674	.....
August	69,686	61,815	60,870	.....
Sept.	62,510	64,639	60,285	.....
Oct.	145,388	161,132	147,036	.....
Nov.	59,250	61,774	57,275	.....
Dec.	57,974	58,755	53,089	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1925	1926	1927	1928
Jan.	157,889	156,056	141,227	146,466
Feb.	160,863	159,488	138,534	.....
Mar.	154,591	150,229	133,777	.....
April	151,429	152,371	140,227	.....
May	146,995	160,998	144,594	.....
June	149,467	160,257	149,772	.....
July	161,338	160,045	151,850	.....
Aug.	161,730	151,929	188,653	.....
Sept.	156,719	158,915	144,213	.....
Oct.	145,388	161,132	147,063	.....
Nov.	143,582	152,608	160,975	.....
Dec.	150,162	136,428	144,594	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1926	1927	1928
Jan.	9,859,170	9,718,008	12,276,710
Feb.	9,579,354	10,119,162	.....
Mar.	9,438,292	10,794,044	.....
April	9,805,851	11,112,295	.....
May	9,531,757	11,359,381	.....
June	9,585,904	11,493,673	.....
July	9,734,687	11,458,128	.....
Aug.	9,058,947	11,989,115	.....
Sept.	9,436,732	12,212,716	.....
Oct.	9,269,806	12,047,661	.....
Nov.	9,257,067	11,939,740	.....
Dec.	9,454,512	12,340,297	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

	Runs	Shipments	Stocks.
1926—			
1927—			
January	2,641.54	1,470.42	14,274.84
February	2,764.30	1,082.82	15,956.32
March	2,587.20	1,878.56	16,664.96
April	2,834.23	1,512.65	17,986.54
May	2,708.40	539.29	20,215.72
June	2,946.29	664.40	22,497.61
July	3,153.39	1,276.61	24,374.39
August	3,057.89	8,713.11	18,719.17
Sept.	3,309.56	2,656.48	19,372.25
Oct.	2,801.32	1,226.99	20,946.58
Nov.	2,746.50	2,220.53	31,472.55
Dec.	2,779.86	1,893.69	22,358.72
1928—			
January	1,886.06	2,424.79	21,819.99

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, February 1	2,010,925.36
Runs from wells	535,769.24
Other receipts	267,313.19
Regular deliveries	387,645.45
Other deliveries	367,857.98

The amount of Illinois oil run by the Tidewater Pipe Co. in January was 25,996.13 bbls., and deliveries were 46,501.57 bbls. Adding these figures makes the runs and deliveries as follows:

1927—	Runs	Deliveries
January	621,421.03	530,086.98
February	595,831.16	476,950.71
March	727,593.94	554,947.42
April	598,225.97	444,818.49
May	728,759.40	543,192.02
June	640,975.85	532,217.78
July	613,961.30	484,902.53
August	651,276.40	529,331.37
September	619,589.49	433,212.49
October	601,099.25	408,287.53
November	605,621.14	415,185.06
December	577,321.25	397,176.97
1928—		
January	561,759.57	434,147.61

Tidewater Pipe Co., Ltd., also delivered in January, 179,156.56 bbls. of Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS						
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total		Total All Ports
August	18,516	3,066	48,129	17,322	26,000	113,032	.....	.....	.....	.....	.....		113,032
September	23,033	6,967	51,400	14,567	19,533	115,500	.....	.....	.....	.....	.....		115,500
October	20,936	4,355	47,966	14,129	14,387	101,774	.....	.....	.....	.....	.....		101,774
November	9,433	2,833	23,033	15,166	4,933	55,400	.....	.....	.....	.....	.....		55,400
December	10,742	3,033	30,253	24,387	7,065	75,484	.....	.....	.....	.....	3,613		79,097

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS						
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total		Total All Ports
August	19,323	9,032	80,903	14,258	51,821	155,387	3,097	21,161	.....	.....	23,258		178,645
September	28,033	11,433	85,500	12,800	37,700	175,467	5,667	19,233	.....	3,600	28,500		203,967
October	26,064	13,097	79,355	3,838	34,097	156,451	1,613	19,323	806	1,871	23,613		180,064
November	25,233	9,033	84,533	30,100	27,067	184,967	4,066	26,566	2,000	1,667	74,167		219,133
December	39,968	2,387	78,968	19,097	29,836	170,258	2,580	15,356	839	1,226	20,000		190,258

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS (REVISED)

(In Barrels)

1927—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
January:	Month	20,184,872	19,035,426	18,565,156	3,769,879	4,076,469	1,945,777	2,648,920	3,332,500	73,558,999
	Daily average	651,125	614,046	598,876	121,609	131,499	62,767	85,449	107,500	
February:	Month	17,982,711	19,752,348	16,425,416	3,352,076	3,574,256	1,842,400	2,439,864	3,007,200	68,376,271
	Daily average	642,240	705,441	586,622	119,717	127,652	65,800	87,138	107,400	
March:	Month	19,835,724	22,480,921	18,179,491	3,675,143	3,853,920	2,086,108	2,684,724	3,335,800	76,131,831
	Daily average	639,862	725,191	586,435	118,553	124,320	67,294	86,604	105,100	
April:	Month	19,493,825	22,208,130	17,755,920	3,516,930	3,378,240	2,039,550	2,671,830	3,474,000	74,538,425
	Daily average	649,794	740,271	591,864	117,231	112,608	67,985	89,061	115,800	
May:	Month	19,506,054	23,258,463	19,489,607	3,704,314	3,493,669	1,984,651	2,682,151	3,467,000	77,585,909
	Daily average	629,228	750,273	628,697	119,494	112,699	64,021	86,521	111,839	
June:	Month	19,181,442	22,830,330	18,360,450	3,437,580	3,365,760	1,920,180	2,634,570	3,330,000	75,060,312
	Daily average	639,381	761,011	612,015	114,586	112,192	64,006	87,819	111,000	
July:	Month	19,319,021	26,622,546	17,580,348	3,454,082	3,406,683	2,311,019	2,678,679	3,363,300	78,635,678
	Daily average	623,194	855,566	567,108	111,422	109,893	74,549	86,409	108,484	
August:	Month	19,279,131	26,283,350	17,682,927	3,442,240	3,242,600	2,231,202	2,489,021	3,571,000	78,221,471
	Daily average	621,907	847,850	570,417	111,040	104,600	71,974	80,291	115,194	
September:	Month	19,064,500	24,111,660	18,322,800	3,341,340	3,032,970	2,027,070	2,268,630	3,465,000	75,633,970
	Daily average	635,483	803,722	610,760	111,378	101,099	67,569	75,621	111,774	
October:	Month	19,448,893	24,247,053	19,200,098	3,509,169	3,117,298	2,058,889	2,258,885	3,400,000	77,240,285
	Daily average	627,384	782,163	619,358	113,199	100,555	66,416	72,867	109,677	
November:	Month	18,516,467	23,083,380	18,628,290	3,313,650	2,906,760	1,956,960	2,234,730	3,302,500	73,942,737
	Daily average	617,216	769,446	620,943	110,455	96,892	65,232	74,491	110,083	
December:	Month	18,938,823	22,208,417	19,840,009	3,427,174	2,962,750	1,927,148	2,400,575	3,219,900	74,924,796
	Daily average	610,930	716,400	640,000	110,554	95,576	62,166	77,438	103,868	
Total 12 months		230,751,463	276,022,024	220,030,512	41,943,577	40,411,375	24,330,954	30,092,582	40,268,200	903,850,687
Daily average		632,196	756,225	602,822	114,914	110,716	66,660	82,445	110,324	2,476,302

PREPAREDNESS

THE Navy is the mobile, the quick moving section of American defense. At the slightest indication of trouble a ship or a fleet is rushed to the scene.

The Portable Pumping Unit is the "navy" of the GASO line. It also is dispatched to the scene at the slightest indication of trouble. Is there a break in the pipeline? The Portable Unit is rushed on its own trailer to take up the burden. Is water service required? The Portable Unit is ready to perform it. Wherever emergency or semi-permanent pumping is required, the Portable Pumping Unit is at hand to furnish it.

• • • • The immediate success and growing sales of the Portable Pumping Unit are the best indications of its usefulness.

May we send you further details?

GASO PUMP & BURNER MFG. CO.
Tulsa · Oklahoma

Capacities: 63 to 250 barrels at 200 to 275 pound pressures; fully enclosed and self-lubricating.

GASO PUMPS
for every oil industry need

International Ambassadors of Performance

HUGHES TOOL COMPANY

Main Office and Plant
HOUSTON, TEXAS

Service Plants
Los Angeles, Calif.
Oklahoma City, Okla.

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Woolworth Bldg.
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